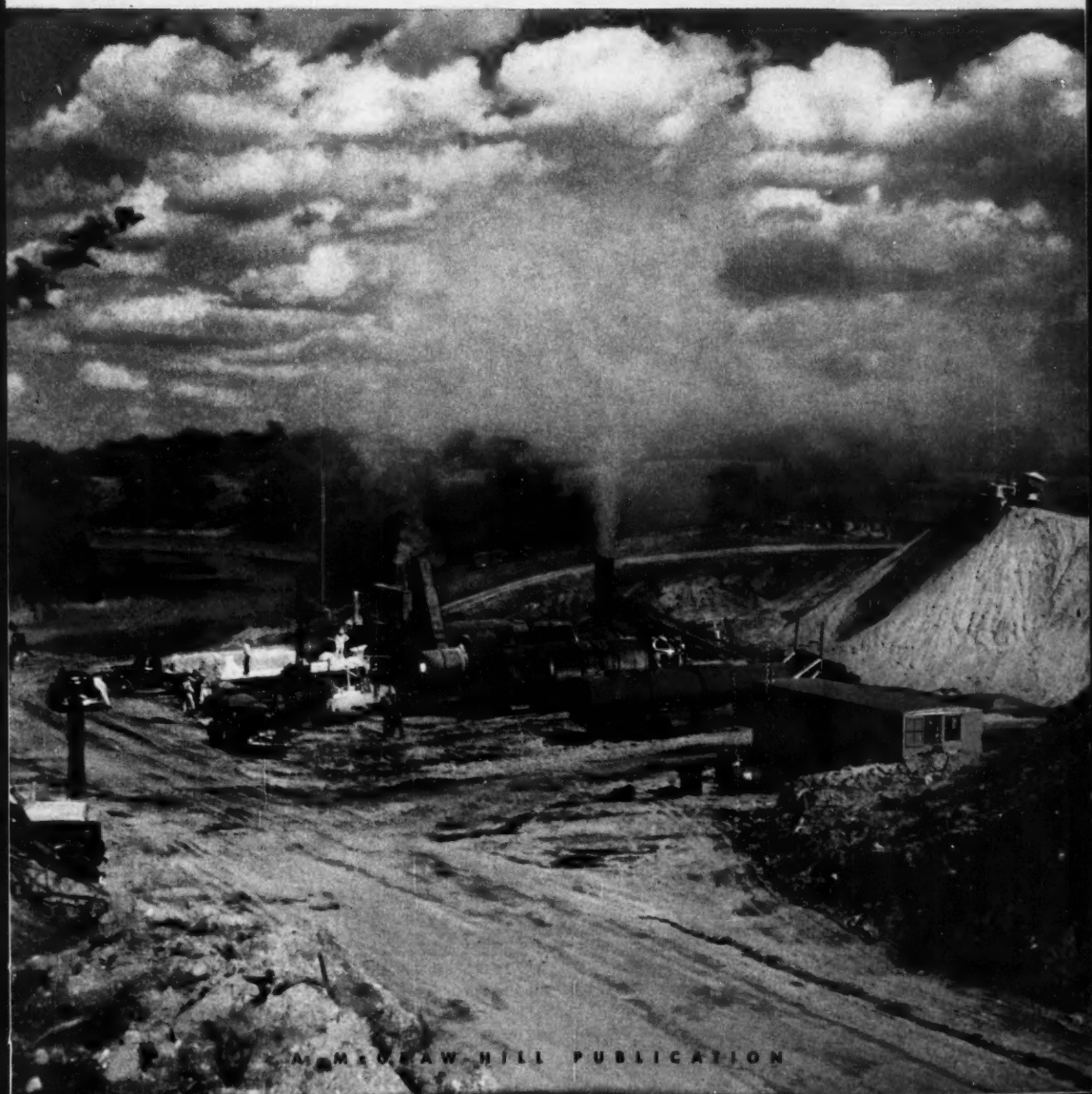


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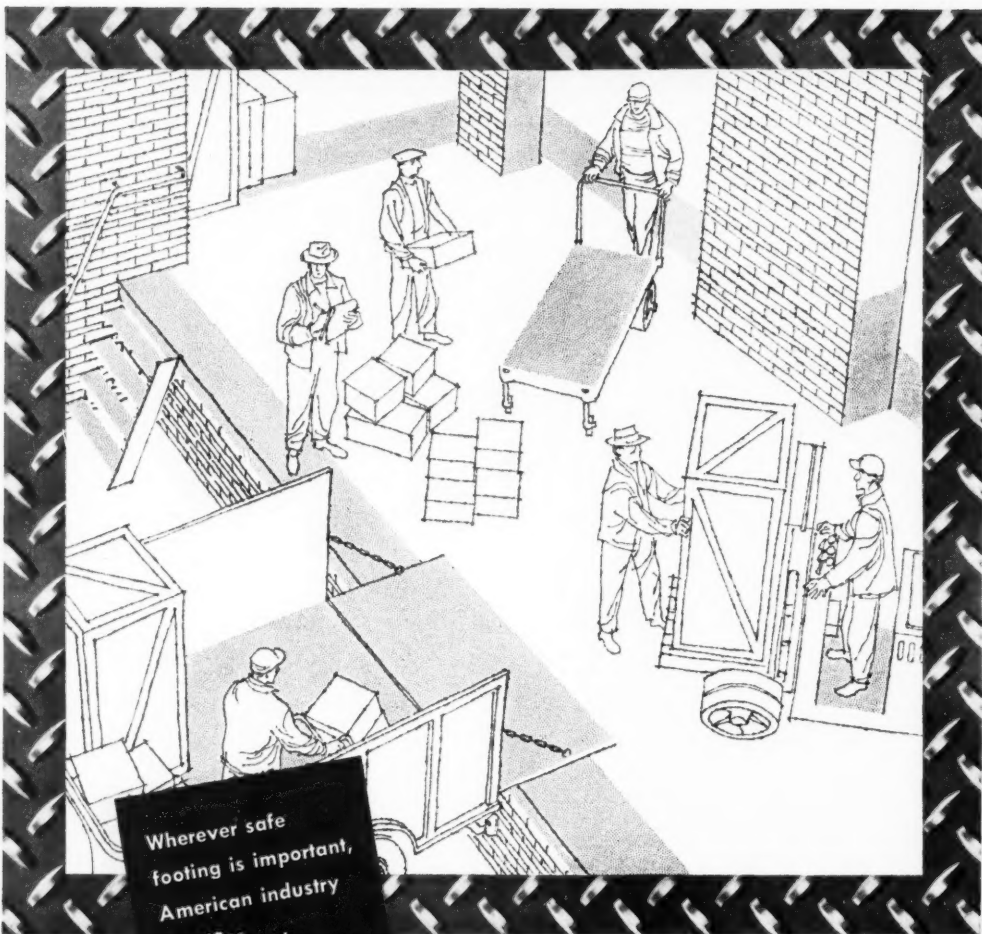
# CONSTRUCTION

## METHODS AND EQUIPMENT

October 1952



A MCGRAW-HILL PUBLICATION



## INLAND 4-WAY SAFETY PLATE

Safety pays off—in personnel, plant and product! You gain man-hours, lower insurance rates, greater fire protection and happier workers.

Each danger spot indicated above can be easily, quickly and economically made safe with

slip-resistant 4-WAY SAFETY PLATE. It adds strength, traction and provides quick starts and stops.

Use 4-WAY SAFETY PLATE for sure footing on all danger spots in your plant and as standard equipment on your product.



**INLAND STEEL COMPANY**  
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SALES OFFICES: Chicago • Davenport • Detroit • Indianapolis • Kansas City • Milwaukee • New York  
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RESEARCH KEEPS

**B.F. Goodrich**

FIRST IN RUBBER



## Where coal rides a roller coaster

### *B. F. Goodrich beltroad cuts conveying costs per ton*

MANY coal mines are located up in the mountains, miles from low-cost transportation. In this case, three mountains stand between the mine and the river. But the four pictures above show how B. F. Goodrich engineers helped solve the problem.

A series of nine conveyor belts was designed to carry 350 tons of coal per hour down the first mountain (1), snake it across country around another mountain (2), shoot it through a mile-long tunnel in the third mountain (3), to the point where it finally emerges at the river's edge (4)—a roller coaster ride more than 2½ miles long.

In choosing the belts, B. F. Goodrich engineers knew the ordinary type could not handle the entire job because of the heavy impact when the coal and

rock are dumped onto the belt at the top of the slope. The belt recommended for this tough work was the B. F. Goodrich *cord* belt, so-called because it's reinforced with individual cords which run lengthwise. Each cord is completely surrounded by rubber. No cross threads tie them together—so they are free to give as heavy chunks of coal strike the belt. The rubber takes the shock.

B. F. Goodrich developed this cord belt years ago, and has since made many improvements that make it first choice for many really tough jobs. One such improvement is "balanced construction". Now the layers of individual cords are built into *both* the top and bottom of the belt to give even greater impact resistance. Other con-

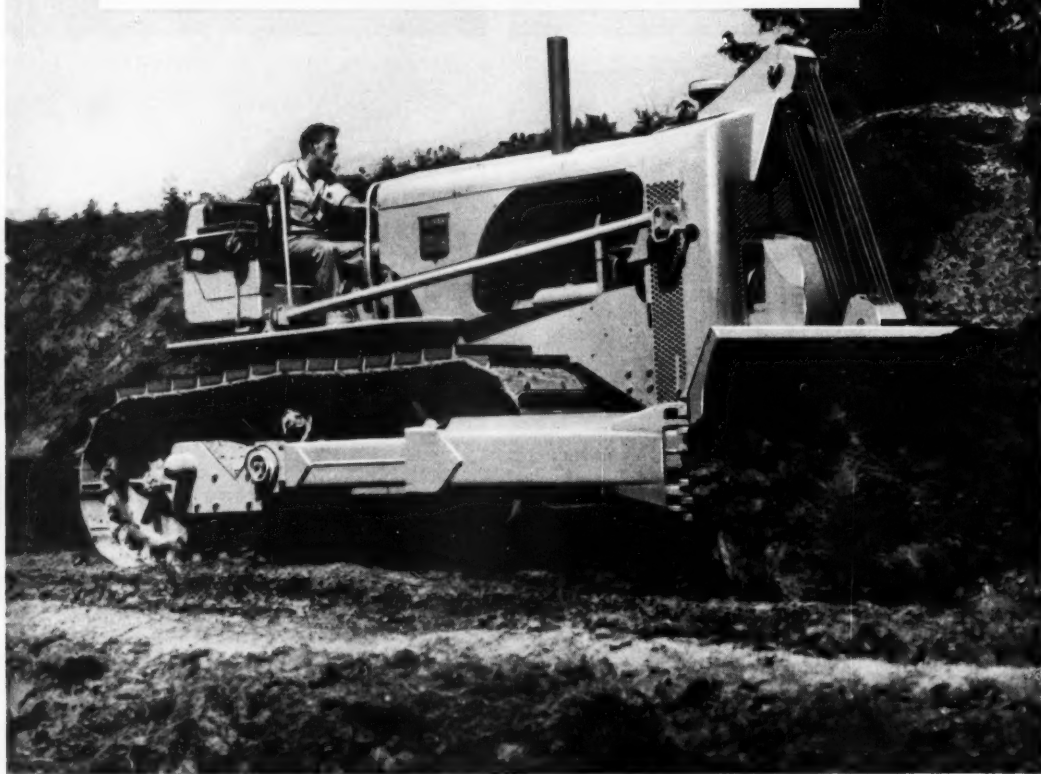
struction features provide for proper troughing whether belt is empty, lightly or fully loaded, and permit longer centers, higher lifts to be used.

No matter what type or size of material you have to move, there's a B. F. Goodrich conveyor belt that can do it better, for less. Your local BFG distributor can show you how these longer-lasting belts can save you money, or write *The B. F. Goodrich Company, Industrial & General Products Division, Akron, Ohio.* (Available in Canada)

*Conveyor Belts* BY  
**B.F. Goodrich**  
 RUBBER FOR INDUSTRY

*the NEW*  
**OLIVER "OC-18"**

*the Operator's Dream  
come true!*



**THE OLIVER CORPORATION**

400 West Madison Street, Chicago 6, Illinois

The easiest operating tractor you've ever seen—that's what you'll say when you see the new Oliver "OC-18" industrial tractor in action. Here's a tractor that has been designed specifically to make life as easy as possible for the operator. Just check this list of "easy operating" features—it puts the "OC-18" way out in front as the tractor that gets more done...faster...every day.



1. Over-Center Clutch. The clutch bar runs across the full width of the dashboard. No need here for the operator to hunt for a single lever...to take his eyes off the work.



2. Air Steering is Standard Equipment. You can steer the "OC-18" with just two fingers of one hand...because air steering is standard equipment.



3. Cold Weather Starting Aid...standard equipment on the Oliver "OC-18"...an approved aid that assures fast, easy starting in extremely low temperatures.



4. Push Button Electric Starting. Even on cold mornings, the husky starter of the "OC-18" gets the engine going...quick.



5. Center-Positioned Gear Shift Lever...is located right where it's easiest to reach. There's no interference with operators' legs or other controls.



6. Ample Leg Room...no cramped legs after a hard day's work with the "OC-18". Grouped controls assure plenty of leg room.



7. Convenient Foot Parking Brakes. Conveniently positioned foot brakes are standard equipment on the "OC-18".

What's more, you get plus performance too! A full 126 drawbar horsepower...greater stability...more track on the ground. Just note the photograph. See how the track hugs the ground almost its entire length. That track is really working...it means real pulling power...greater stability and better balance for dozing. You distribute more of the tractor power over a greater length of "working track".

Try out this great new tractor yourself. Ask your Oliver Industrial Distributor to arrange a demonstration. When you see for yourself how easy it is to operate, you'll never be satisfied with any other big tractor.

For complete details and specifications see your Oliver Industrial Distributor or write direct to The Oliver Corporation, 400 West Madison St., Chicago 6, Illinois.



8. Comfortable, Two-Man Seat...plenty of room for two men in this upholstered seat. It's a big help in cutting down operator fatigue.



9. Easy-Action Friction Throttle. The throttle is located at the right arm rest of the seat in the most convenient position for the operator.

A complete line of industrial wheel and crawler tractors



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Safety Hats

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principal cities

# CONSTRUCTION

## METHODS AND EQUIPMENT

Volume 34, Number 10

**OCTOBER 1952**

Established 1919

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October 1952

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# HAPPY *'Happy Warrior'*



GOVERNOR ALFRED E. SMITH HOUSES  
Section 2—Project No. N. Y. S.-25

Owner:  
NEW YORK CITY HOUSING AUTHORITY  
Architects: EGGERS & HIGGINS  
Structural Engineers:  
ELWYN E. SEELYE & COMPANY  
General Contractor:  
CAULDWELL WINGATE COMPANY  
Ready-Mix 'Incor' Concrete:  
COLONIAL SAND & STONE CO., INC.  
—all of New York City

## AL SMITH WOULD BE PROUD OF THE GREAT SLUM-CLEARANCE PROJECT WHICH FITTINGLY BEARS HIS NAME

● East Side, West Side, All Around the Town, the New York City Housing Authority is changing the face of Gotham, with 65,000 well-built, low-rent apartments in 54 projects to date.

Just completed is Section Two of Governor Alfred E. Smith Houses. The Happy Warrior would be specially pleased with this redevelopment of 21 acres, in the shadow of Brooklyn Bridge, a stone's throw from his Oliver Street boyhood home.

As in all New York City Housing Authority projects, this one too is built with appearance and comfort uppermost in mind, but with an eye always to sound construction economies.

Case in point is the use of 'INCOR' 24-HOUR CEMENT in the five 15-to-17-story buildings in Section Two. Switchover to 'Incor' in October enabled the Contractor to maintain a well-planned 36-hour stripping schedule all Fall and Winter, saving at least 36 hours on each pour—maximum speed, lowest job overhead, minimum cost . . . typical of the performance of America's FIRST high early strength portland cement.

\*Reg. U.S. Pat. Off.

Below, air view of downtown Manhattan, Gov. Alfred E. Smith Houses, left foreground. Upper left, Governor Smith's statue in park which is part of project.



LONE STAR CEMENTS COVER  
THE ENTIRE CONSTRUCTION FIELD

## LONE STAR CEMENT CORPORATION

Offices: ABILENE, TEX. • ALBANY, N. Y. • BETHLEHEM, PA. • BIRMINGHAM  
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PHILADELPHIA • RICHMOND • ST. LOUIS • WASHINGTON, D. C.

LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 17 MODERN MILLS, 125,600,000 SACKS ANNUAL CAPACITY

# Announcing the **NEW Commander**



**FOR HIGHER  
PERCENTAGES OF  
SECONDARY  
CRUSHING  
AND GREATER  
SCREENING  
CAPACITY**

## LARGER ROLL CRUSHER

The 30" x 22" Roll Crusher in the new Commander increases secondary crushing capacity by approximately 50% for the producer who needs greater output, or whose pit conditions put a bigger load on the secondary crusher. Heavy-duty construction features include: Smooth or corrugated manganese steel roll shells; Timken tapered roller bearings for maximum long wear and economical operation; Finger timing gears of chrome molybdenum and heavy chrome vanadium steel; Helical tension springs; Easy roll shell opening adjustment. Cedarapids patented safety shear plates prevent crusher damage from uncrushable foreign material.

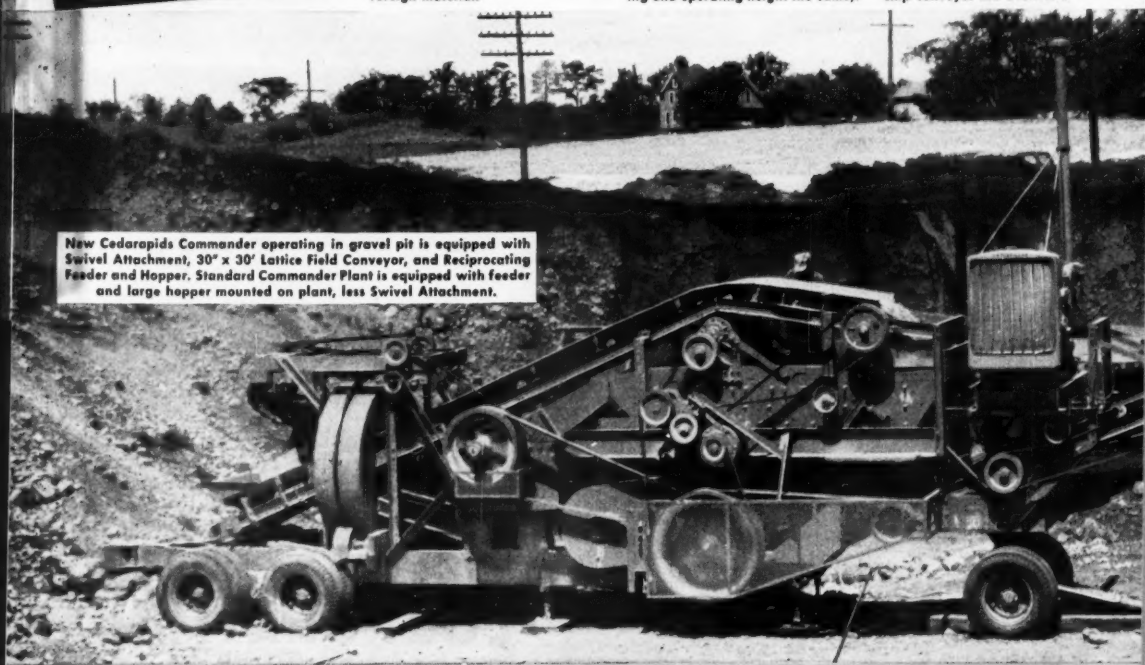
## LARGER SCREEN

The big 48" x 10' Screen on the Commander Plant gives you 30% more screening capacity! This, plus the more efficient screening action and the extra capacity of all Cedarapids Horizontal Vibrating Screens, assure big volume output of accurately graded aggregate. The top deck feeding principle used on Cedarapids Plants also increases capacity by eliminating any possible choke point. By making an immediate split of the pit material, the circulating load on crushers, belts and screens is reduced and the output of the plant is not limited by the capacity of the jaw crusher. Lower over-all head room required (traveling and operating height the same).

## LARGER CONVEYORS

The feed conveyor, delivery conveyors and under-crusher conveyor on the Cedarapids Commander have been widened to 30" to handle the increased capacity of this plant. The channel frame conveyors combine light weight with exceptional strength. Pulley shafts are fitted with sealed anti-friction bearings. The idler ball bearings are sealed for life. These belt conveyors are ideal for Commander Plants because they are built for continuous, efficient service under the toughest working conditions. As optional equipment, an 18" x 18' sand conveyor and an 18" x 27' chip conveyor are available.

New Cedarapids Commander operating in gravel pit is equipped with Swivel Attachment, 30" x 30' Lattice Field Conveyor, and Reciprocating Feeder and Hopper. Standard Commander Plant is equipped with feeder and large hopper mounted on plant, less Swivel Attachment.



## THE IOWA LINE

of Material Handling Equipment Includes: ROCK AND GRAVEL CRUSHERS •

BELT CONVEYORS • STEEL BINS • VIBRATOR AND REVOLVING SCREENS • UNITIZED ROCK AND GRAVEL PLANTS • FEEDERS • PORTABLE POWER CONVEYORS • PORTABLE AND STATIONARY STONE, GRAVEL AND SAND PLANTS • REDUCTION CRUSHERS • BATCH TYPE AND VOLUMETRIC TYPE ASPHALT PLANTS • DRIERS • DUST COLLECTORS • HAMMERMILLS • WASHING PLANTS • VIBRATING SOIL COMPACTION UNITS • DOUBLE IMPELLER IMPACT BREAKERS

# ... PORTABLE CRUSHING AND SCREENING PLANT!

**H**ERE'S a brand new gravel crushing and screening plant designed specifically to meet the demand for *much greater tonnages of fine-crushed products*. The Cedarapids Commander has approximately the same over-all dimensions as the popular Cedarapids Junior Tandem, but it contains a *bigger* Roll Crusher, a *larger* Horizontal Vibrating Screen and *wider* Conveyors to handle the increased capacity. More secondary crushing and greater screening capacity give you a big advantage in any pit, but are especially profitable where there is a high percentage of pit material to be crushed.

The Commander's big-volume output is combined with extreme portability and flexibility to handle a wide range of crushing and screening conditions... *and you get the same low maintenance and operating costs that are standard in the Junior Tandem!* It adds up to a pleasant profit picture in today's booming aggregate market. Find out about *all* the many new Commander features that help you command the market, the bidding, the pit conditions and the profit potential on every job. See your Cedarapids distributor today.

## ... and a host of other big-production features ...

- Swivel Feed Attachment (optional) to drive 30" x 30' lattice frame feed conveyor (as shown in picture).
- 30" Reciprocating Feeder and Hopper, clutch controlled from operator's platform or ground, assure a steady, workable flow of material. A weight-loaded metering gate regulates the feeding for properly balanced plant operation.
- 75" x 22" Elevating Wheel Return System makes the Commander shorter and narrower for easier transportation, and speeds handling of material from crushers to screen.
- Sand Ejector Screw, 12" diameter and 4' long, is used under the screen for discharging sand onto the sand conveyor. Optional equipment.
- The Commander is easily converted into a high capacity rock plant by using a Cedarapids 2236 AAA or 2540 AAAA Portable Primary ahead of it.
- Highly portable for easy moving from pit to pit. Fast set-up and take-down minimize lost time between jobs.

## It's another reason why so many contractors BUY CEDARAPIDS!

The development of new products to meet the constantly increasing demands for greater production of specification aggregate with no increase in operating and maintenance costs, is still another reason why more and more aggregate producers Buy Cedarapids.

Cedarapids equipment is produced in such a wide range of sizes and types, and designed for such a wide variety of

work that selection of the proper machine for your specific job is no problem... and you are sure of getting equipment which is as modern and efficient as constant engineering research and precision methods of manufacture can make it. Iowa fully understands the needs of producers because Iowa Engineers keep in close contact with the problems of the field.



Built by  
IOWA

# IOWA MANUFACTURING COMPANY

CEDAR RAPIDS, IOWA, U.S.A.

# B.F. Goodrich



## Tires roll over razor-sharp rock —defy cuts and bruises

**L**EAD and zinc come from rock that shatters into countless sharp, jagged splinters. Trucks hauling these metallic elements roll over roads filled with this abrasive, razor-edged rock—rock that slashes and chews tires to shreds in a matter of weeks.

Not so with the tires pictured above. They are B. F. Goodrich tires, designed to carry giant loads in just such operations. The Universal tread is compounded to resist rock bruises and cuts. Husky, wedge-shaped lugs give positive two-way traction, protect against side slippage even on soft ground.

Like all B. F. Goodrich off-the-road tires of 8 or more plies, Universal tires

are built with the exclusive nylon shock shield. Layers of rubber-coated nylon cords under the tread rubber stretch together under impact, protect the tire body from the smashing shocks of off-the-road work.

This shock shield gives you the added savings of greater tire mileage, increased bruise resistance, more recappable tires and less danger of tread separation. All these advantages, yet the nylon shock shield costs nothing extra. In sizes 12.00 and larger, Universal tires have *double* nylon shock shield—twice the protection for even the roughest work. No wonder operators across the country report more

hours of service with B. F. Goodrich tires.

B. F. Goodrich builds on or off-the-road tires to meet all your needs. See your local dealer—he'll be glad to show you how to save money and get longer tire life—or write direct to: *The B. F. Goodrich Co., Akron, Ohio.*





**WHY THE**

**LIFE EXPECTANCY**

**OF YOUR NORTHWEST  
IS GREATER!**

The design and performance of Northwest equipment has been proved in years of service. One out of every three Northwests sold is a repeat order!

There is one particular Northwest policy that should interest every prospective Shovel, Crane, Dragline and Pullshovel buyer and that is the Northwest program of continuous and tested improvement with you as a Northwest owner in mind.

The development of mechanical improvements for better performance on new equipment doesn't always permit their installation on old rigs. But here at Northwest, every new improvement is entered upon with the idea of making the new modern advantages and output of today's Northwest available, if possible, for older machines in the field with a minimum of mechanical difficulty. A policy like this means money in your pocket — added value not only for you but for the man who buys from you. It's another good reason why you should plan to own a Northwest.

**NORTHWEST ENGINEERING COMPANY**  
1503 Field Bldg., 135 South La Salle Street, Chicago 3, Illinois

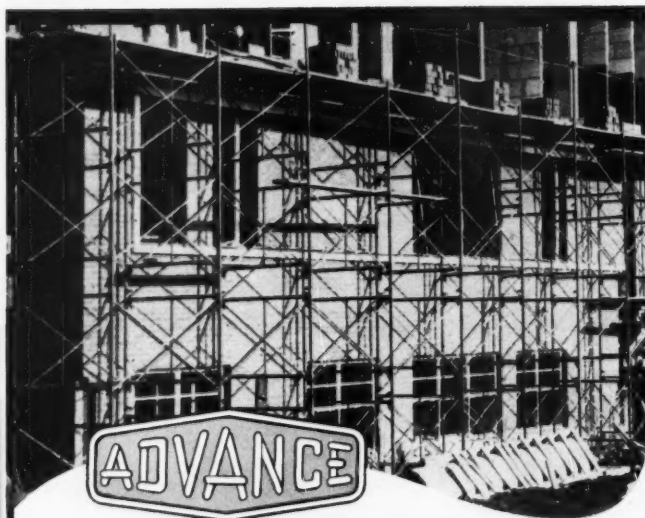
**NORTHWEST**

in **ROCK**

it's another

COLLINS STONE CO.  
CHICAGO, ILLINOIS

*Successful Contractors  
Stay Successful  
With Proved Equipment*



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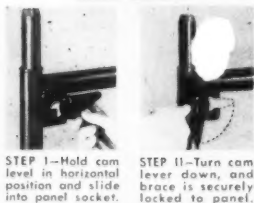
## TUBULAR STEEL SCAFFOLDING

*easy to erect—provides safe,  
solid structure—has long life*

Both in assembly and knockdown Advance Scaffold's patented self-contained locking system saves hours of time. Doing more work with fewer parts speeds the progress of your job—with absolute safety.

The cross braces in ADVANCE Scaffolding have self-contained Cam Locks which secure them instantly to the panels by merely

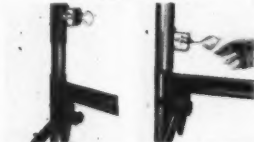
### CAM LOCK



STEP I—Hold cam level in horizontal position and slide into panel socket.

STEP II—Turn cam lever down, and brace is securely locked to panel.

### STACK LOCK



STEP I—Slip bottom of column over stack coupling on column beneath.

STEP II—Pull out stack lock then release it so that it enters hole in stack coupling.

If you have not received your copy of the ADVANCE Scaffolding Data File, write for it today. See for yourself how easy it is to assemble and how it can save time and costs on your jobs.



**ADVANCE SCAFFOLD DIVISION**

BEAVER ART METAL CORPORATION

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## \* JOB TALK \*

### ... About Construction Fires

CONTRACTORS and their supervisory personnel have a substantial interest in the subject discussed in the article beginning on page 101, namely how costly construction fires can be and the various ways they get out of hand when preplanning for prevention has been neglected. Actually, fire in a building under construction is more difficult to control than when it occurs in a completed structure.

The National Fire Protection Association proposes a 10-point program for reducing fire losses in buildings under construction. Here it is:

#### 1. Rubbish collection and disposal:

A daily clean-up of scrap lumber, paper cement sacks and other building debris serves the dual purpose of removing a fire hazard and makes for orderly working conditions. If scrap fires are permitted on the building site, temporary water supplies and a fire hose should be ready and each fire should be thoroughly soaked before employees leave the building site.

#### 2. Welding and cutting equipment:

Realistic rules for safe installation and operation of welding and cutting equipment should be followed. NFPA Pamphlets Nos. 51 and 51-A (35c and 15c each) give detailed and specific recommendations on this subject. The use of welding and cutting equipment with a lack of safeguards for its operation is hazardous but, with proper protection, this equipment can be used safely.



**3. Salamanders:** Construction jobs may harbor extreme hazards in the form of salamanders made of bat-  
(Continued on page 18)



**“We're keeping  
on schedule!”**

Just south of California's Half Moon Bay, Contractors Snodgroth, Archibald & Ebright of Redwood City tackled a tough highway realignment job. 165,000 cu. yds. of wet, sandy clay had to be moved to take four sharp turns out of the two-lane road. Five "Caterpillar" DW10 Tractors with No. 10 Scrapers took over. They got 3,200 yards out every 9-hr. day, moving that tough material 750 feet. D7 and D8 Tractors and No. 12 Motor Graders were also on the job.

Superintendent Don Westbrook reports: "We're keeping on schedule with our 'Caterpillar' equipment. The DW10s' speed sure helped on this job, with our 1,750,000 station yards of overhaul, 500 feet of free-haul. They fit the job very well."

The DW10 Tractor is all-"Caterpillar" built, with a smooth constant mesh transmission and heavy-duty clutch that's built to last. Its hydraulic power steering never loses the feel of the road.

Turning radius is extremely short, only 37 feet non-stop. And synchronized braking holds the trail unit first, prevents jackknifing. The No. 10 Scraper's cable operation allows easy pumping of dead materials, positive ejection moves the stickiest load out in a hurry, and the big open bowl is an easy target for the shovel operators.

Your nearby "Caterpillar" Dealer can give you the whole story on this big, speedy yellow team.

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS

# CATERPILLAR

REG. U. S. PAT. OFF.

**DIESEL ENGINES  
TRACTORS • MOTOR GRADERS  
EARTHMOVING EQUIPMENT**

# THE BIGGER THE JOB THE MORE YOU SAVE

**BARBER-GREENE**

MODEL

**76**

PERMANENT BELT CONVEYORS

**STANDARDIZED**

**SELECTION  
SAVE ENGINEERING TIME... AND MONEY  
ERECTION**

Barber-Greene Conveyors are made of pre-engineered, self-contained, *standardized* units that are quickly assembled without costly engineering time. Field assembly of miscellaneous pulleys, bearings and dozens of other parts is completely eliminated. B-G Conveyors are as easily disassembled, expanded or relocated—with 100% salvage. The value of these B-G features is in direct proportion to the size and

scope of the conveying job. The bigger the job—the more you will save. Wherever you have bulk handling problems—or are planning to modernize or expand present facilities—investigate Barber-Greene Conveyors. Take advantage of Barber-Greene's extensive experience in solving problems of bulk handling similar to your own. Complete descriptive data is available for handy reference—it's yours for the asking.

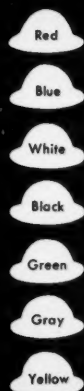
# Barber-Greene

Aurora, Illinois, U. S. A.





Get **COLOR**  
selection with  
**Proved**  
**Protection**



## The M·S·A GLASS FIBER HAT

Here's the hat that meets your needs with "flying colors." The M.S.A. Glass Fiber Hat, available in seven colors, gives protection against impact and penetration; resists moisture and temperature changes; has high dielectric qualities. Its *smooth, hazard-deflecting crown* has been proved on jobs across the nation. The easily replaceable Snap-in-Adjustable lining is suspended from the

hat's brim for *extra* support and protection against impact. It's a lightweight hat, smart looking, and perfectly balanced for job comfort. And important too—every step in its manufacture is controlled in the M.S.A. Plant. This means a quality product all along the line. Result—you get a *better* hat.

Write for details today.

## THE M·S·A TYPE K SKULLGARD



... leader in Popularity, Protection  
in every industry

The tough, laminated bakelite composition, smooth contoured crown, light weight, and comfort have long marked this head protector as the No. 1 choice in the construction

industry. This is the hat that turns ACCIDENTS into INCIDENTS—safeguards workers from every head hazard. Our bulletin gives complete details. Write for your copy.

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SAFETY EQUIPMENT HEADQUARTERS  
**MSA**



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At Your Service: 68 Branch Offices in the United States

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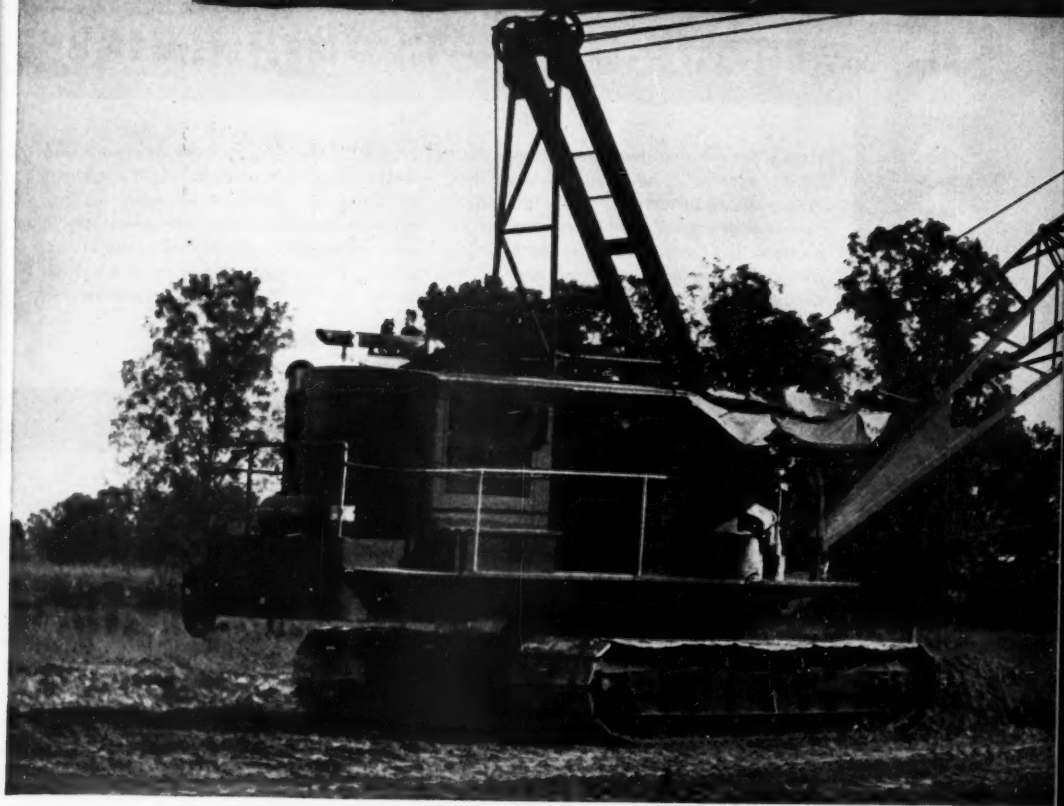
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Cable Address: "MINSAP" Pittsburgh

# POSITIVE PROTECTION in dust or mud...

when you use  
**TEXACO MARPAK**



**TUNE IN:**  
Tuesday nights  
on television —  
the **TEXACO STAR THEATER**  
starring **MILTON BERLE**.

See newspaper for  
time and station.



# TEXACO

Don't let dust, mud and moisture get in their "dirty work" on your equipment. Keep them out with *Texaco Marfak* — the tough, longer lasting chassis lubricant that *stays in* the bearings in spite of jolts, heavy loads and road splash. *Texaco Marfak* prevents rust, minimizes wear, prolongs the life of parts, reduces maintenance costs.

To assure the same fine protection for wheel bearings, use *Texaco Marfak Heavy Duty*. It seals itself in, seals out dirt and moisture. And there's added safety in the fact that it won't leak onto the brakes. No seasonal change is required.

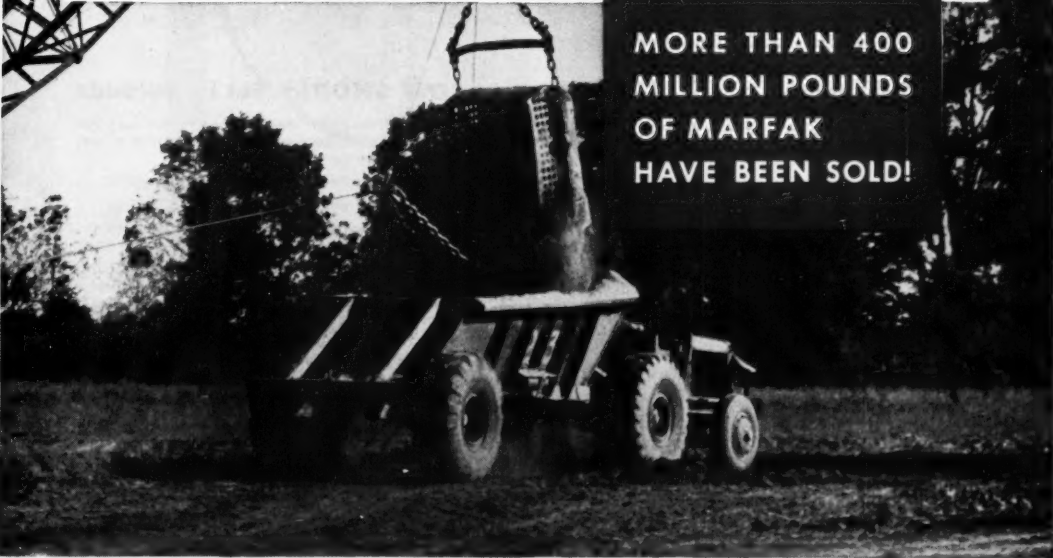
### **Other Texaco Maintenance-Reducers**

For engines, heavy duty gasoline or Diesel, use *Texaco Ursa Oil X\*\**. This fully detergent and dispersive oil cleans as it lubricates and has extra resistance to oxidation. Reduces fuel consumption and maintenance costs.

For crawler track mechanisms, use *Texaco Track Roll Lubricant*. It protects against dirt and moisture, guards against rust and wear, prolongs the life of parts.

Ask your Texaco Lubrication Engineer about the Texaco Simplified Lubrication Plan that lets you handle *all* your major lubrication with *only six* Texaco Lubricants. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write:

The Texas Company, 135 East 42nd Street, New York 17, N. Y.



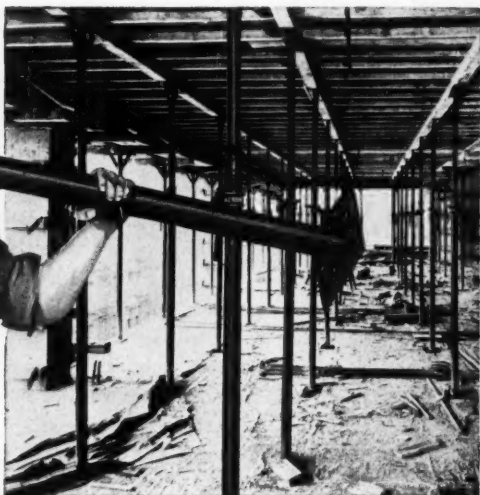
MORE THAN 400  
MILLION POUNDS  
OF MARFAK  
HAVE BEEN SOLD!

# **Lubricants and Fuels**

**FOR ALL CONTRACTORS' EQUIPMENT**

*Faithfully yours*  
**50**  
*for Fifty Years*

# SPEED UP YOUR



## ACROW SHORES Set in Seconds

ACROWS are truly one-man shores. One man can set an ACROW Shore accurately in a matter of seconds by following three simple steps:

- 1) Lift inner tube to approximate height desired . . .
- 2) Insert steel pin in nearest hole . . .
- 3) Turn collar handle for final adjustment to the smallest fraction of an inch.

Stripping goes faster, too—just a twist of the collar handle and ACROWS are down . . . ready to telescope compactly for easy transport to the next job or for space-saving storage.

ACROWS give you 100% salvage—they can be used on all construction jobs with their complete range of four sizes. Use them over and over again—ACROW'S all-steel construction is practically indestructible.

*Over 1,000,000 Acrow Shores in Use!*





# CONSTRUCTION

with

# ACROW

## ADJUSTABLE STEEL SHORES

ACROW Steel Shores are engineered and built from base to head for the fastest, safest, securest support on the job. Completely positive action leaves no chance for slippage. There is no cutting, wedging, or nailing to eat up time and money. And ACROW Shores have no jacks, levers, or supplementary tools to lose.

**EXCLUSIVE ACROW SELF-CLEANING FEATURE** makes possible rapid stripping operations. A unique patented extension of the collar nut extends over a segment of the threaded tube (see left). When collar handle is turned in stripping operation, encrusted concrete, dirt, and grit are removed from the thread—making ACROWS instantly ready for use on the next job.

### GENERAL SPECIFICATIONS

Shore Sizes, Dimensions, Weights, and Capacities

Size No.	Height		Weight in lbs.	Failing Load		Recommended Safe Working Load	
	Fully Closed	Fully Extended		Fully Closed	Fully Extended	Fully Closed	Fully Extended
1	3 ft. 7 in.	9 ft. 10 in.	46	10.96 tons	8.97 tons	8210 lbs.	6720 lbs.
2	6 ft. 7 in.	10 ft. 10 in.	49	10.50 tons	7.90 tons	7840 lbs.	5975 lbs.
3	8 ft. 2½ in.	12 ft. 5½ in.	56	10.15 tons	7.55 tons	7490 lbs.	5600 lbs.
4	11 ft. 0 in.	15 ft. 0 in.	69	7.27 tons	2.89 tons	5225 lbs.	2050 lbs.

Standard 6" x 6" Beam Type 14" x 4" J Head 14" x 4"\*

\*J Head available as an insert or standard head.

*Write for Free Information on Acrow Products*

ACROW, INC. Dept. CM-10  
510 N. Dearborn St., Chicago 10, Illinois

Gentlemen: Please send me the following  
Free Bulletins (Please Check)

- ☐ Acrow Shores ☐ Trench Jacks  
☐ Column Clamps ☐ Telescopic Floor Joists

Name .....

Company .....

Address .....

City .....

Zone ..... State .....

# MORE AND MORE OF THE WORLD'S WORK DEPENDS ON

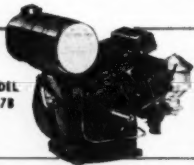


Whether or not a piece of power equipment turns out to be a "good buy" depends in large degree on the skill with which the engine is matched to the rest of the machine. That is why it's wise, when buying such equipment, to choose one of the leading makes—a make with Red Seal power. In that way, you get an engine which is not only tailored to its job, but backed by specialized experience dating from 1902.

**PARTS AND SERVICE EVERYWHERE**

Six series of air-cooled four-cycle engines—vertical and horizontal shaft—from 1 to 2½ h.p., for use in lawnmowers, sprayers, garden tractors, compressors, pump

MODEL  
AA-7B



units, blowers, materials handlers, conveyors, and many other uses. For information, address Air-Cooled Engine Division, 12800 Kercheval Avenue, Detroit 14, Mich.

**Continental Motors Corporation**  
MUSKEGON, MICHIGAN

## JOB TALK . . . Continued from p. 10

tered metal drums with holes punched in them. They become an acute fire hazard when used near large amounts of combustibles or in proximity to non-flameproofed tarpaulins.

A safe and rugged design of salamander should be used and should be employed only in places where units are not likely to be upset by work operations—or a safer form of heat should be provided. Coal or coke should be used in salamanders rather than wood and other light combustible materials, because of the spark hazard resulting from the use of the latter types of fuels. In addition, they should be kept under supervision and should not be allowed to continue burning if there is no watch service provided after the end of each working day.

**4. Temporary wiring:** Construction operations ordinarily require considerable amounts of temporary wiring which constitute a hazard unless carefully installed and supervised by a competent electrician.



Temporary circuits, particularly high-voltage circuits, as may be required for power tools, cranes and similar equipment, require substantial protection against mechanical damage, as well as proper installation.

**5. Flammable liquids:** Careless storage and handling of flammable liquids are responsible for many fires in construction operations. Small quantities of gasoline and similar fuels should be handled in safety cans. Bulk quantities of flammable liquids should be stored and handled in accordance with NFPA Standards for Flammable Liquids, Pamphlet No. 30-L. Solvents such as thinners, asphalt, mastic and other plastic materials are hazardous unless carefully handled, stored and used. Rags and mops used to clean up spilled flam-

(Continued on page 24)



# Machine Against Muscle

THE STORY OF WHY A FAMOUS COMPANY  
SEES FIT TO TAKE A NEW NAME

In 1924 the dream of a man named Joseph W. Sullivan was realized in a revolutionary new tool that was to take the industrial world by storm. The portable power saw was born and a young company was off to a flying start.

Inevitably, the success of this new power tool attracted imitators, brought others to the field. In spite of this, Skilsaw, Inc., maintained a leadership which continues to keep it first in the field.

With this remarkable growth came stronger and stronger demand from *all* industry for *other* kinds of power tools built with SKIL Quality,

*other* ways to replace muscle with machine and do jobs better, with less work in less time. Skilsaw, Inc., has answered this demand—now offers more than 160 different models of portable power tools, each one an example of the finest engineering and quality in the field—SKIL Quality!

So it is with justifiable pride that we now alter a corporate name we have in simple fact outgrown. Hereafter, the company long known as Skilsaw, Inc., will be known as SKIL Corporation, the name to be remembered in the manufacture, sale and service of portable power tools.

## SKIL Corporation

*formerly SKILSAW, Inc.*

5033 ELSTON AVENUE, CHICAGO 30, ILLINOIS



26 DIFFERENT TOOLS BESIDES SAWS... IN OVER 160 MODELS



When competition threatens...

# that Pioneer Edge

## Why Vaughan & Moon can sell gravel for less

● Vaughan & Moon, Arlington, Virginia, went shopping. They wanted to get the jump on their competition in the important Washington, D.C.—Arlington gravel market. One way suggested itself . . . eliminate expensive truck loading by moving an efficient portable plant directly to the source of the material.

After careful study, these shrewd gravel producers chose a PIONEER 18V plant for the job. They reasoned that PIONEER's famous Bottom Deck Feed, swivel feed conveyor, method of transfer between return conveyors, and simplicity of drives,

offered the extra efficiency they sought.

Today, this little plant is a busy one. Located near Bailey's Cross Roads on Columbia Pike in Arlington County, Virginia, (only 15 minutes from downtown Washington) it's turning out 90-100 t.p.h. of 1½" minus material with 50% crushing. The Arlington County Bureau of Public Roads is an important customer.

Did this plant live up to expectations? "It's even better than we hoped", says Clarence Vaughan . . . another skilled operator who has found the way to overcome competition.



# Pioneer

*Continuflow* EQUIPMENT





# tips the balance



## How Bottom Deck Feed Boosts Production

**First:** By an ingenious method of feeding and routing material, Bottom Deck Feed provides twice the effective screening area of ordinary plants. This makes it possible to handle a considerably greater screening load without loss in efficiency.

**Second:** A quick, simple adjustment of the jaw crusher makes it possible to balance the load between the two crushers while the plant is in full operation, without changing screens. When material in the pit runs coarse, open the jaw and let the roll crusher do more of the work. When pit material is running fine, close the jaw until it does its full share. Result: both crushers are kept busy . . . and your plant operates at peak efficiency at all times.

## There's a Pioneer Portable Plant for every job

Whatever your requirement, there's a PIONEER Portable Plant that will do the job. Duplex plants are now available in seven different sizes, ranging all the way from the little 17V (and 18V shown above), to the big 46VE, with Diesel Electric Drive. All feature the exclusive PIONEER principle of Bottom Deck Feed . . . all offer the famous PIONEER EDGE in performance.

Write for further information . . . today.

### PIONEER ENGINEERING WORKS

1513 Central Avenue • Minneapolis 13, Minnesota  
(SUBSIDIARY OF POOR & COMPANY • CHICAGO)

• Please send me information on the equipment checked.

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> GRAVEL PLANTS | <input type="checkbox"/> WASHING PLANTS    | <input type="checkbox"/> MECHANICAL FEEDERS          |
| <input type="checkbox"/> ROCK PLANTS   | <input type="checkbox"/> BITUMINOUS PLANTS | <input type="checkbox"/> VIBRATING SCREENS           |
| <input type="checkbox"/> JAW CRUSHERS  | <input type="checkbox"/> APRON FEEDERS     | <input type="checkbox"/> BUZZER SCREENS (LIGHT DUTY) |
| <input type="checkbox"/> ROLL CRUSHERS | <input type="checkbox"/> ORO FEEDERS       | <input type="checkbox"/> CONTINUFLU CONVEYORS        |

Name

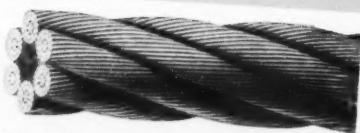
Company

Address

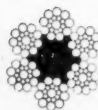
City  Zone  State

# The Proper Rope

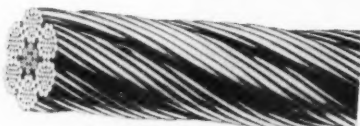
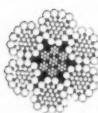
*Plus*



**TO COMBAT FATIGUE** Tiger Brand 6x37—Type S Excellay Preformed. This rope is listed as "Special Flexible Hoisting Rope" and is also known as "Crane Rope." It is the most flexible of standard constructions which permits its use with small sheaves and drums. Its reserve strength is highest of the standard constructions.

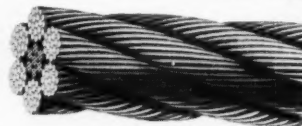


**TO COMBAT ABRASION** American Tiger Brand 6x19 Seale Patent Excellay Monitor Preformed Wire Rope offers greater resistance than regular hoisting ropes because of the large, uniform wire diameters of the outside wires in each strand. Lang Lay construction also increases the resistance by a better distribution of the wear over a greater length of the outer wires.



**FOR RESISTING CRUSHING**, the introduction of a steel core instead of regular fiber core in the various types of ropes, minimizes the harmful effect of crushing and maintains the intended position of all strands in the rope.

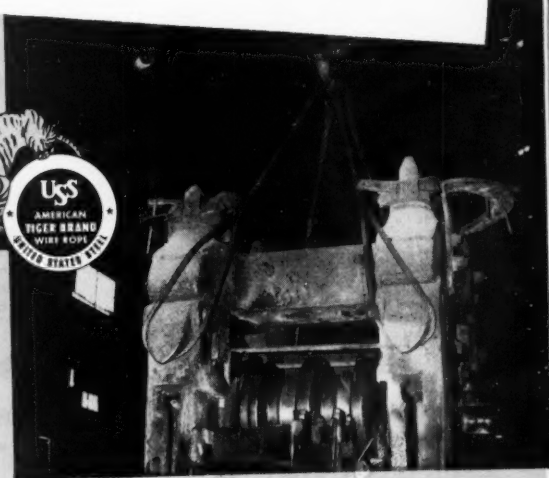
The section of American Tiger Brand 6x30 Type G Excellay Flattened Strand Lang Lay with I.W.R.C. as shown, combines the features of increased strength because of the large metallic area, greater distribution of wear on the outside wires, resistance to crushing of the core and flexibility because of the type of rope itself.



**THE "OLD WORKHORSE"** Tiger Brand 6x19 Type N Excellay Preformed Standard Hoisting Rope is more widely used in a greater variety of applications than any other type. It has a superior combination of qualities—good resistance to abrasion and fatigue, high strength and long life. With wire core it has 7½ percent greater strength than with fiber core.



More than a million tons of oyster shells have been converted into chemicals at this plant. The owners have found that Tiger Brand Wire Rope stands up best under these severe abrasive conditions, cutting rope costs, reducing down time and keeping equipment at top capacity.



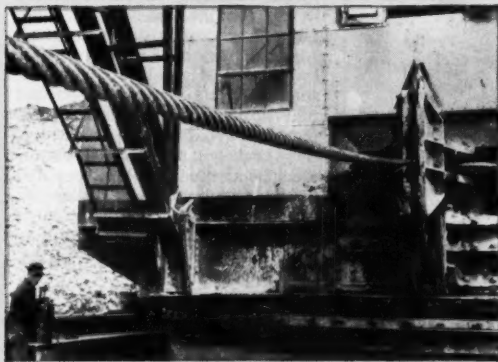
It slings the thing, especially when you are handling heavy lifts such as the machinery shown here. And Tiger Wire Rope Slings are designed to handle all jobs promptly, safely and economically. They are made of the toughest, strongest wire rope manufactured, and come in many types. Write for our book, "American Tiger Wire Rope Slings."

# Proper Maintenance

## *Equals* Longer Rope Life Lower Rope Costs

● Many prominent users of wire rope have found they can reduce wire rope costs as much as 50% by using a wire rope designed for the job. They get better rope service at lower rope cost by following this simple, job-tested system, with the help of the Tiger Brand Wire Rope Specialist.

Let this qualified expert make *sure* that you select, for each job, a wire rope that is strong enough to carry the load with an ample margin of safety . . . able to stand incessant flexing and sharp bending without failure of wires due to fatigue . . . built to take the most severe abrasion and crushing. Then make sure that every foot of wire rope you own is inspected, cleaned and lubricated *regularly*.



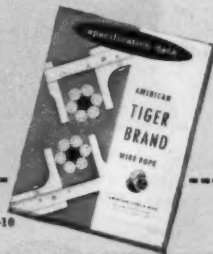
This new Tiger Brand Drag Line Rope was designed especially to resist the extremely severe operating conditions encountered in this class of service. On one job where ropes lasted an average of 600 hours, this Tiger Brand Drag Line Rope was still going strong after 1100 hours—believe it or not!

Engineers and contractors who follow this procedure tell us that they are getting twice—sometimes three times—the life they expected from Tiger Brand Wire Rope, plus greater safety for crews and equipment and freedom from rope-caused work stoppages, all of which means important money savings.

When you are in the market for wire rope, make full use of the engineering knowledge of an expert who has made a life-work of analyzing and solving wire rope problems. Just drop us a line and your Tiger Brand Wire Rope Specialist will be glad to consult with you. Meanwhile, why not send in the convenient coupon for a copy of our latest book?

### Send for This NEW BOOK

It contains specification data that will help you select the right rope for each application. In descriptive text, illustrations, diagrams and tables, it gives you complete information on types of rope, diameters, working loads and safety factors for all sorts of rope service.



American Steel & Wire  
Rockefeller Building, Dept. B-10  
Cleveland 18, Ohio

Please send me your new book.  
"Specification Data, Tiger Brand Wire Rope."

Name

Company

Address

City  Zone  State

### AMERICAN STEEL & WIRE DIVISION

UNITED STATES STEEL COMPANY, GENERAL OFFICES: CLEVELAND, OHIO

COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO • TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS

UNITED STATES STEEL EXPORT COMPANY, NEW YORK

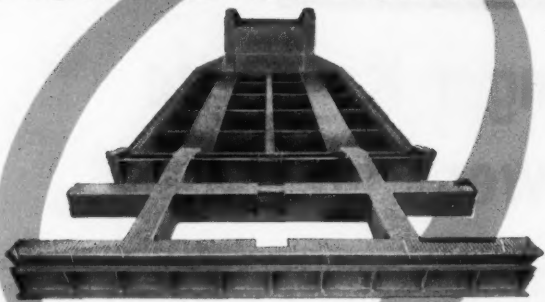
## U-S-S AMERICAN TIGER BRAND WIRE ROPE

*Excellently Performed*



UNITED STATES STEEL

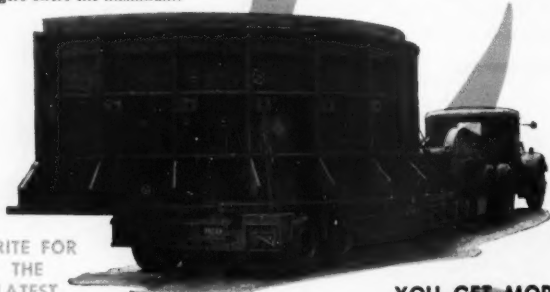
# Where Else Can You Buy "A STANDARD TRAILER"



*with* **ALLOY STEEL MAINBEAMS**  
*for* **Lightness with Strength & Elasticity**

There's no need for "splitting hairs" on the matter of load weights when you're hauling with a Rogers Trailer. Rogers standard practice of incorporating Mayari R Alloy Steel in all main frame members for strength with lightness affords the necessary elasticity for deflection under load and return to normal after unloading.

Before you purchase any trailer, check the Safety Factor rating. You'll find Rogers offers the maximum.



WRITE FOR  
THE  
LATEST  
CATALOG

EXPERIENCE  
builds 'em



PERFORMANCE  
sells 'em

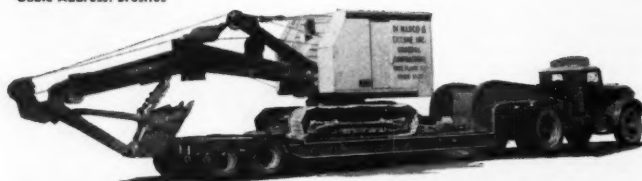
**ROGERS BROS. CORP.**  
ALBION, PENNA.

220 ORCHARD ST.

Export Office: 50 Church St.  
New York 7, N. Y., U.S.A.  
Cable Address: Brosites

YOU GET MORE  
FOR YOUR MONEY

in a  
**ROGERS  
TRAILER**



A Rogers Type "D" Trailer

## JOB TALK . . . Continued from p. 18

mable liquids and paint should be destroyed to avoid spontaneous ignition which might cause an expensive flare-up.

**6. Tar kettles:** Tar kettles involve heating of the material and exposure to combustibles in the vicinity. They should be located outside of the building, and particular care



should be taken not to place them on combustible roofs. Wood fires for heating tar kettles are particularly hazardous. Overheating of the kettles has resulted in many serious fires.

**7. Gasoline-powered equipment:** Air compressors, hoists, pumps and similar equipment often are fueled by gasoline. They should be located so that engine exhausts are well away from combustible material. Another hazard is refueling. It is essential that gasoline engines be shut off while being refueled and that proper safety cans are employed to avoid spillage. It is necessary that engine-powered equipment be kept reasonably clean and free of combustible materials on hot surfaces, to avoid ignition of these combustibles which may flare up beyond control when soaked with oil.

**8. Watchman service:** On large construction jobs watchman service is an essential from the theft point of view and it also serves a useful purpose for fire prevention. Boys playing in incompleting buildings have caused numerous fires, some intentional and some accidental. Unless means are provided to positively prevent access to the building, a watchman to guard the property and to detect fires in their incipency is a good investment. Men hired for such services should be able-bodied individuals. The guide for watchmen published by the NFPA in Pamphlet No. 601 (15¢ per copy) is a manual recommended to judge the qualifications  
(Continued on page 30)





## WHEN DIGGING'S TOUGH, THIS DIPPER'S TOUGHER

How service and manganese steel are cast  
and welded into **AMSCO** Dippers

More than 5,000,000 cubic yards of rock and abrasive materials have been dredged by one AMSCO All-Manganese Steel Dipper similar to this 1¾-yard model—and the end of its service is nowhere in sight!

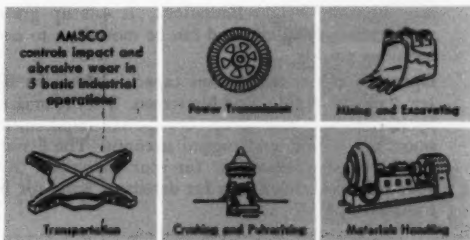
Service like this is expected—and considered normal—by users of AMSCO Dippers. Just as users throughout all industry know that AMSCO Manganese Steel Products mean service and long life wherever impact and abrasion must be controlled. AMSCO Manganese Steel has the unique quality of actually becoming harder with use, acquiring a high surface polish to shrug off grinding abrasion, while retaining body metal toughness.

Made entirely of "The Toughest Steel Known," AMSCO Manganese Steel Dippers use no rivets, but are fabricated by the modern, streamlining Plug-Welding method that permanently interlocks cast segments. AMSCO All-Manganese Steel Dippers are available in two-piece welded, three-piece renewable lip, and Missabi designs—or can be adapted to your unusual materials handling specifications. Also available in sizes to fit all power shovels.

Check these additional PLUS features:

- One-piece Manganese Steel back casting.
- Top and bottom have cast-in, double-wall box-sections for maximum strength, minimum weight.
- Cast-in pin connecting lugs for handle, back, braces, bail.
- Bail is a one-piece casting with elongated tubular cross-section, for strength and lightness.
- Teeth are set for clean, fast digging.
- Interior is smooth and slightly tapered for free dumping.

Contact your shovel manufacturer about AMSCO Dippers, or write AMSCO, Chicago Heights, Illinois.



AMERICAN

**Brake Shoe**

COMPANY

**AMERICAN MANGANESE STEEL DIVISION**

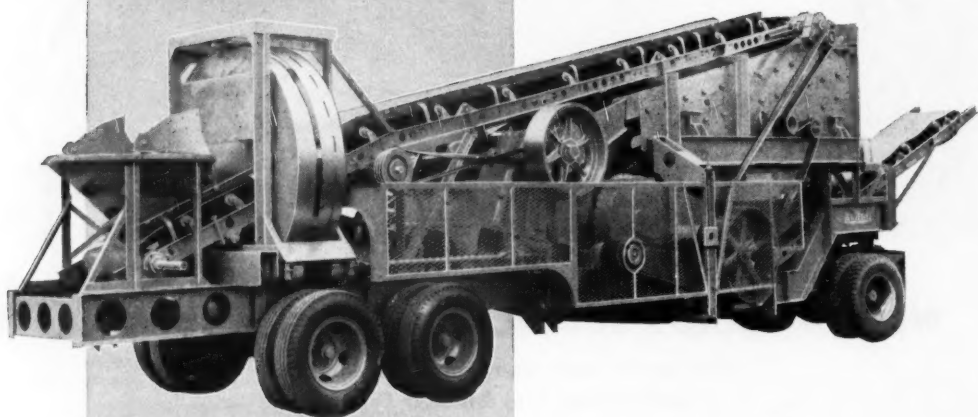
385 EAST 14th STREET • CHICAGO HEIGHTS, ILL.

Foundries at Chicago Heights, Ill.; New Castle, Del.; Denver, Colo.; St. Louis, Mo.; Los Angeles, Calif.

Offices in principal cities. In Canada: Joliette Steel Limited, Joliette, Quebec.

# THE HOTTEST PLANT THAT EVER HIT A GRAVEL PIT

## THE NEW **UNIVERSAL** 880 GRAVELMASTER *Senior "R"*



### IT'S BIG IT'S PORTABLE

#### IT'S DESIGNED TO MEET WEIGHT LIMITS

At last! Here's the complete single unit dual-crusher gravel plant that gives you top capacity and meets state highway weight limitations. It eats up gravel at a profit-making clip and can be moved on to new locations quickly.

Operators report tremendous capacities from its big jaw, extra large rolls, and big screen. They're amazed by its fast and easy setup, low power requirement, smooth operation, and rugged strength. You'll want a Gravelmaster Senior "R" for your operations. Ask your Universal distributor for details or write for information.

#### TOP CAPACITY FEATURES

- 1036 roller bearing overhead eccentric jaw crusher
- 3022 roller bearing star gear drive secondary roll crusher
- 4' x 12' 2½" deck roller bearing inclined gyrating screen

**UNIVERSAL GAVE CEDAR RAPIDS ITS  
ORIGINAL FAME FOR QUALITY CRUSHERS**

**IN CEDAR RAPIDS SINCE 1906**

**UNIVERSAL ENGINEERING CORPORATION** Division of **PETTIBONE MULLIKEN CORPORATION**  
327 8th St., N.W., Cedar Rapids, Iowa 4700 West Division St., Chicago 51, Illinois  
Phone 7103 Phone Spaulding 2-9300



**95% of your yardage  
can now be handled  
with machines completely  
lubricated by just  
3 Shell products\***



**\*SHELL RETINAX A GREASE**

... a superior new multi-purpose grease for all types of heavy-duty automotive vehicles. It does the job of four or more specialized greases—yet only one gun is required.

Recommended for chassis (all points), wheel bearings, universal joints, and water pumps, Shell Retinax A gives you better protection against wear and washing out.

**\*SHELL SPIRAX EP††**

... an exceptional "alloy type," Extreme Pressure gear oil. Shell Spirax EP is recommended for rear axles of the hypoid, spiral bevel, and spur gear types, as well as for heavy duty transmissions. It is extremely stable ... has long-lasting anti-rust and film strength properties. Results: longer gear life, lower maintenance costs.

**\*SHELL ROTELLA OIL**

... for all engine lubrication, Shell Rotella Oil is a new, fortified, extra-heavy-duty lubricant which has set new standards of performance in high speed diesel and heavy-duty gasoline engines.

By maintaining clean engines and minimizing sludge formation, piston lacquering, ring and valve sticking, and port clogging, Shell Rotella Oil extends periods between overhauls, reduces parts replacement costs, and gives you reduced oil consumption.

††Some manufacturers recommend a straight mineral oil for gear lubrication. Your Shell Lubrication Engineer will suggest the proper lubricant in such cases.

**SHELL "3-BARREL"  
LUBRICATION**

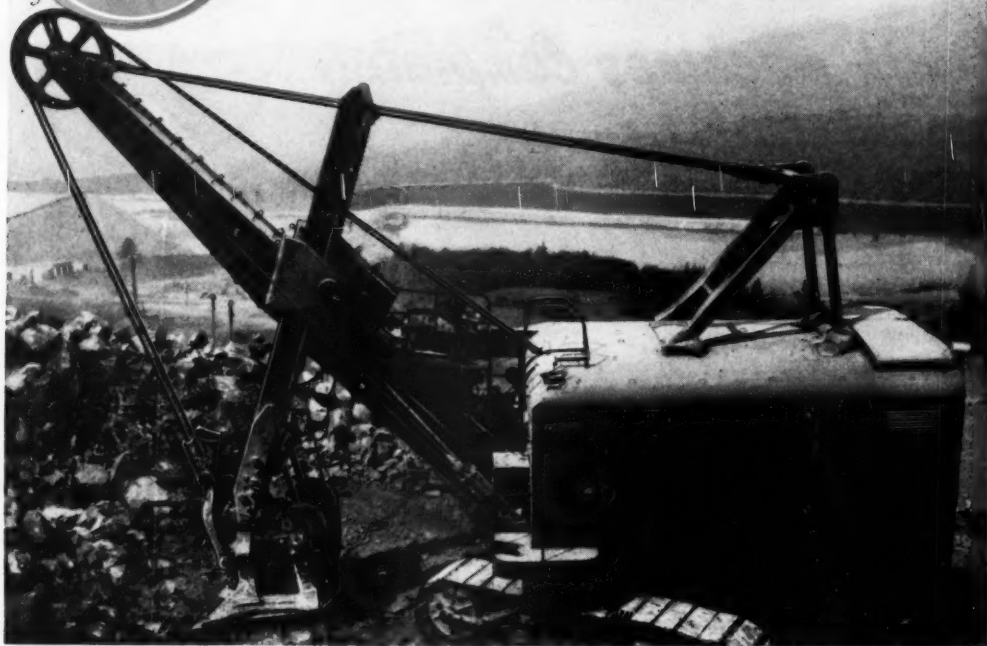
SHELL OIL COMPANY,  
50 West 50th Street, New York 20, N. Y.  
100 Bush Street, San Francisco 6, Cal.

Please send me literature describing the  
3-Barrel plan of lubrication.

Name

Company

Address



## ***TRU-LAY Preformed WIRE ROPE***

● For each use there is *one best* wire rope . . . one that will stand repeated loading, abrasion, crushing, or continuous bending, and be the best rope to buy.

To achieve this, there is a **TRU-LAY Preformed Wire Rope** made in a special construction for your equipment. This construction has the exactly right combination of strength, bending life, and resistance to wear and crushing that you need.

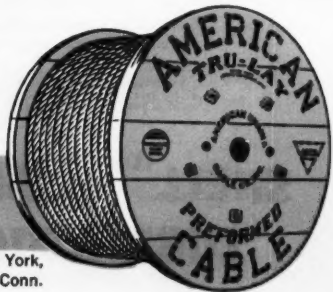
The one best wire rope . . . **TRU-LAY Preformed** . . . will last you longer and cost less to use. Specify and get **TRU-LAY Preformed** improved plow steel—the rope identified by the Green Strand.

**ACCO**



AMERICAN CABLE DIVISION  
AMERICAN CHAIN & CABLE

Wilkes-Barre, Pa., Chicago, Denver, Houston, Los Angeles, New York,  
Odessa, Tex., Philadelphia, Pittsburgh, San Francisco, Bridgeport, Conn.





# GREATEST

**PORTABLE  
SCREEDING MACHINES  
EVER BUILT!**

New *Whiteman* Models  
offer many big improvements!

**NEW POWER!**

Larger Wisconsin and B & S Engines.

**NEW ADJUSTABLE FRAME.**

Fits any width form.

**NEW VERSATILITY.**

Adaptable for overhead screeding.

**NEW WEIGHT DISTRIBUTION.** Eliminates sag in screed sticks.

**NOW!**

Adaptable to Any Job!

Telescopic frame adjusts from  
3' to 15' in width.

Never before has a screeding machine achieved the superb performance, extreme versatility and rugged dependability of the new Whiteman Models RS-11 and RS-15. The perfect answer to screeding problems on slab floors, driveways, walks, narrow, winding roads, shoulders, bridges, approaches, tributary roads, limited and inaccessible areas. These machines puddle and vibrate the concrete throughout the entire depth and area,

thoroughly compact the slab, bring moisture to the surface and screed the slab to a perfect level preparatory to floating and finishing. Heavier aggregates do not settle to the bottom, but remain in suspension, resulting in a superior, far more durable slab. Results are equal to those of larger equipment. APPROVED BY MANY HIGHWAY ENGINEERS. Send coupon now for prices and literature.

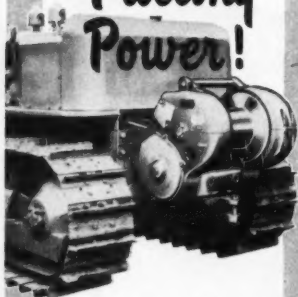
*Whiteman*

**THE LEADER IN CONCRETE EQUIPMENT**

WHITEMAN MFG. CO., DEPT. C  
3249 Casitas Ave., Los Angeles 39, Calif.  
Please send price, literature and name of distributor for ☐ Screeding Machines.  
☐ Power Buggy ☐ Floating Finishing Machines.

Name \_\_\_\_\_  
Firm \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_

# DOUBLES Tractor Pulling Power!



CARCO MODEL 60 is a 2-speed winch with high cable capacity. Developed for oil field work—useful in other industries.

On most major construction jobs, there are multiple uses for tractor mounted Carco winches and hoists. For towing heavy equipment in muddy or rough terrain, a Carco winch will double a tractor's pulling power. For yanking stumps, moving rocks, buildings or materials, rescuing mired machinery, this extra pulling power pays dividends. Or, with a tractor mounted Carco hoist, you can rig a mobile dragline, slackline, cableway or hoist in a hurry. Save wear and tear on the tractor, give it added reach, make it easier to take hold of any load by installing Carco winches and hoists. See your nearest Carco dealer for complete data on the Carco models that will make man-hours more productive and help you cut costs.

## CARCO

**WINCHES**

FOR ALL INDUSTRIAL  
TRACTORS

PACIFIC CAR AND FOUNDRY COMPANY  
RENTON, WASHINGTON - Branches at Portland,  
Oregon, and Franklin Park (Chicago), Illinois

## JOB TALK . . . Continued from p. 24

of the man selected and to specify his duties.

**9. Accessibility:** Contractors will do well to provide access to buildings under construction for emergency fire department use. Roadways should be selected and maintained in passable condition convenient to the nearest hydrants available and, if the building has standpipe and hose systems, access to fire department connections for such standpipe should be assured. Hydrants should be kept accessible at all times. Because it is difficult for firemen to identify the standpipes to be used for a fire in upper stories, signs should be placed designating the proper standpipes for floors or sections of floors which may be involved. Plans of the building should be provided to the chief of the local fire department so that he is fully advised as to the type of construction, materials used and any special hazard which might exist.

**10. Protection:** Wherever possible, fire protective equipment such as standpipes and hose systems and sprinkler systems should be completed as the building is erected, floor by floor. Water supplies should be connected and sprinkler heads installed. If automatic detection equipment is to be provided, such equipment also should be installed as soon as construction conditions permit.

The National Fire Protection Association has a host of standards and recommended practices on the safe handling of flammable liquids and gases, on building construction and equipment, on extinguishing and alarm facilities, and it also is the originator and publisher of the National Electrical Code. The address is 60 Batterymarch St., Boston 10, Mass.

## Reprints on Earthmoving

REPRINTS ARE AVAILABLE of the CM&E articles "Earthmoving . . . An Art and a Science," concluded last month. In answer to numerous requests for the full set of this valuable information on the world-wide business of earthmoving, a 64-p reprint has been prepared. It will prove permanently useful to contractors and their estimators, supervisors and equipment operators. Price: 50c; 10 or more copies, 35c each. Write to CONSTRUCTION METHODS AND EQUIPMENT, 330 W. 42nd St., New York 36, N. Y.

When you  
require  
sure  
instant  
control  
... look to  
Thermoid



Bay City Shovels, Inc., leading manufacturer of Heavy Duty Shovels, Cranes, Draglines and Clamshells, can't gamble with Friction Materials. They demand complete control . . . long lasting dependability under all operating conditions.

To assure top performance, Bay City specifies Thermoid Friction Materials for two important reasons: (1) Thermoid's close attention to individual needs, and (2) Thermoid's superior construction and highly developed friction compounds. These features add up to quality and performance that make Thermoid the choice of leading manufacturers.

For Brake Linings, Clutch Facings . . . all types of Friction Materials, it pays to specify Thermoid.

# Thermoid

Thermoid Company  
Trenton, N. J.



You get that extra  
margin of endurance with

# Thermoid

CONVEYOR BELTS • HOSE • MULTI V-BELTS



Whatever your business, you have applications that involve Conveyor Belts, Hose or V-Belts where these Thermoid products will do your job better—provide that extra margin of endurance that cuts costs.

Constant improvement and expansion of engineering and production facilities have always been part of Thermoid's program for the past 70 years. The results of this continuous program are rubber products that guarantee you high operating efficiency and superior performance . . . meet the demand for maximum service at minimum cost . . . last longer and require less maintenance.

When you have a design, production or operating application involving Conveyor Belts, Hose or Multi V-Belts, call your Thermoid distributor. In most cases, he can select the size and type that will serve your needs most efficiently. Thermoid Sales Engineers are always ready to help you with special problems.

**It will pay you to specify Thermoid.**

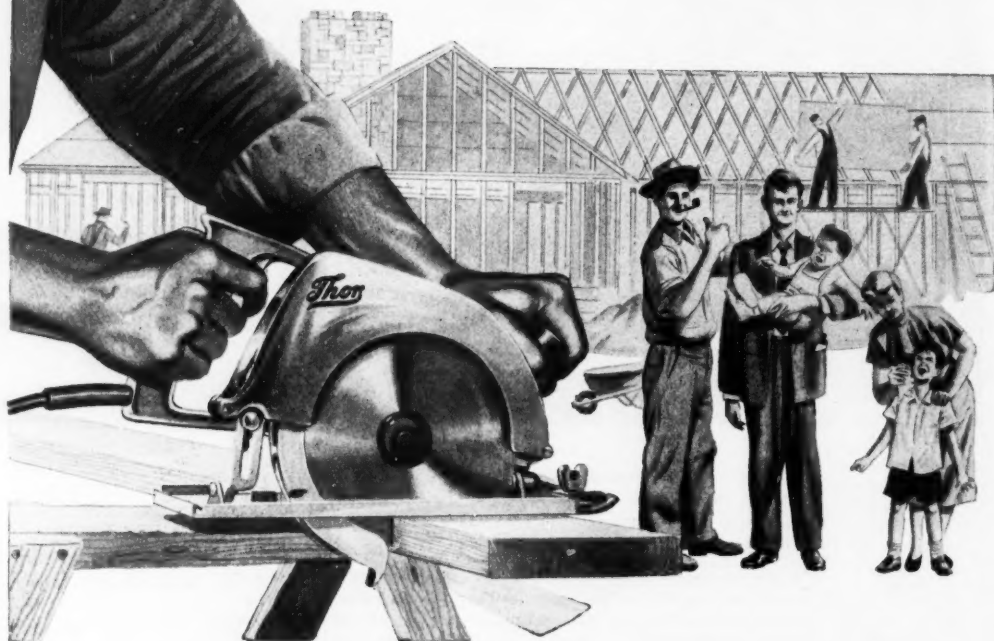
## Thermoid

Conveyor & Elevator Belting • Transmission Belting  
F.H.P. & Multiple V-Belts • Wrapped & Molded Hose

Rubber Sheet Packings • Molded Products  
Industrial Brake Linings and Friction Materials

Thermoid Company • Offices & Factories: Trenton, N. J., Nephi, Utah

# On time?.. You bet! We're using Thor Silver Line Saws!



Cross-cut, rip, bevel . . . every cut goes faster with the new Thor Silver Line Saws. **POWER** does it — extra **POWER**, heavier duty motor, ball bearing drives, direct gearing, long-shaft blade mounting — dozens of features that add up to hours, days . . . and dollars . . . saved on every job. A free demonstration will convince you. Write "Thor Tools," 175 N. State St., Aurora, Ill.



**DRILLS • IMPACT WRENCHES • SCREWDRIVERS • TAPPERS  
NUT SETTERS • GRINDERS • SANDERS • BENCH GRINDERS  
POLISHERS • SAWS • HAMMERS • NIBBLERS  
BALANCERS • BELT SANDERS • VALVE SHOPS • ACCESSORIES**  
FACTORY SERVICE BRANCHES IN 20 PRINCIPAL CITIES





## Operation Ready-Mix

### Has a New Payload Standard

**HOW** can your trucks handle bigger loads...do more work...make tighter schedules...keep operating costs down?

The answer, of course, is White *Specialized Design*, tailored to today's tough operating conditions in the busy construction industry...and everywhere there is a specialized transportation job to do.

White builds to most efficient production standards and specifications, yet is engineered to your exact operating needs. That's why Whites look good in day after day service and in your cost records...year after year.

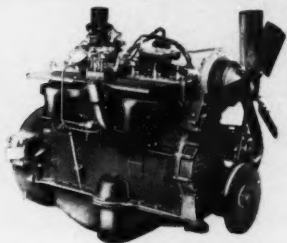
**THE WHITE MOTOR COMPANY • Cleveland 1, Ohio**



FOR MORE THAN 50 YEARS THE  
GREATEST NAME IN TRUCKS

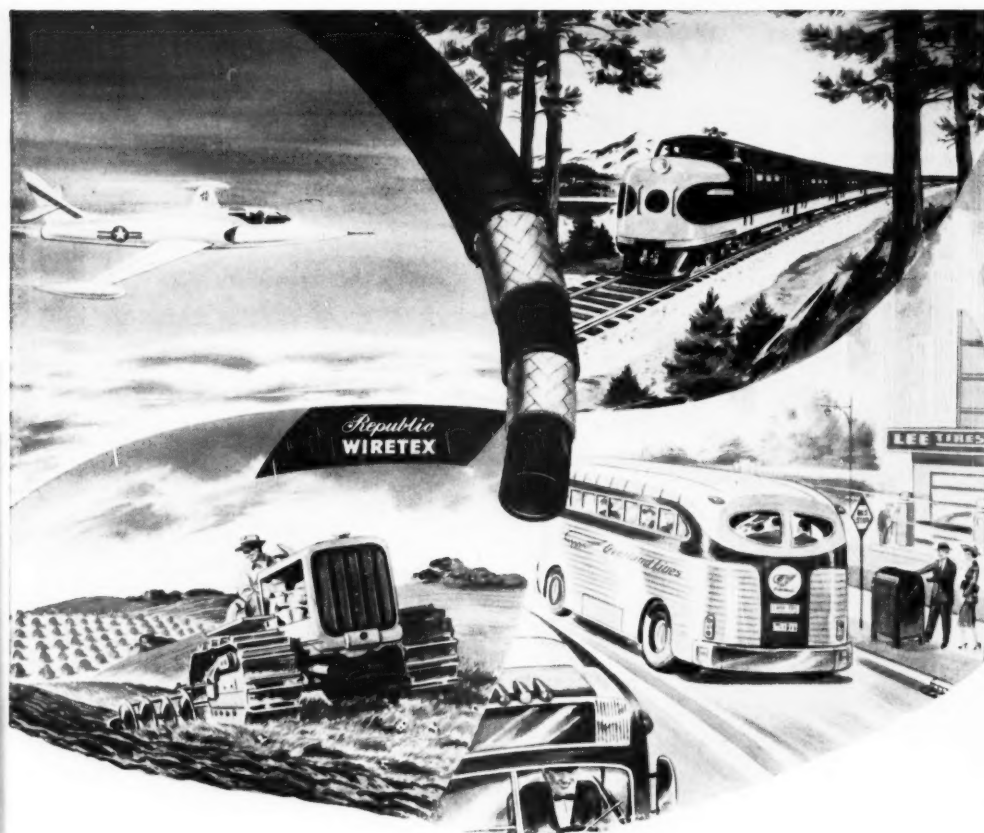
#### **MATERIAL SERVICE CORP., CHICAGO, BOOSTS PAYLOAD WITH WHITES**

A fleet of sturdy White six-wheelers keeps on the move for Material Service Corp., in the Chicago area...helping to haul 2½-million tons of Ready-Mix per year. White *Specialized Design* saves weight...adds earning power...assures efficient, economical service on the rugged hauling jobs for Material Service Corp.



#### **More Power...More Earning Power with White Engines**

ENGINEERED right for today's operating conditions, White Engines earn more...save more. High-compression, high output and rugged, White Engines make possible maximum payloads within highway weight limits because there's more power per pound of engine weight. Designed for maximum fuel economy and longer life, too!



## *On their way...*

... to you. From the newest, most modern-equipped factory, is coming a complete new line of High-Pressure Hose... Republic WIRETEX... High-Pressure Wire-Braid Hydraulic Control Hose—Low and Medium-Pressure Hydraulic Hose—Wire-Braid Steam and Air Hose—Textile and Rayon-Braid Hose... hose designed and produced to meet the demanding conditions of high and low-pressure usage.

Republic Wiretex hose is the answer to your present or future production plans, wherever selection requirements for high-pressure carriers or low-pressure carriers for gases or liquids involve characteristics of great strength, flexibility and long life. For more complete information on how Wiretex can help you, write today to Dept. D, Republic Rubber Division, Lee Rubber & Tire Corporation, Youngstown 1, Ohio.

*"Quality hose builders for over 50 years"*



## REPUBLIC RUBBER DIVISION

LEE RUBBER & TIRE CORPORATION, YOUNGSTOWN 1, OHIO

INDUSTRIAL RUBBER PRODUCTS



## ENGINEERING REPORTS:



**CONTINUOUS-LINE FLUORESCENT LIGHTING**—key feature of Brooklyn-Battery electrical system—gives safer, shadowless illumination. Variable light intensity and lower operating costs are other important features.

## Ribbons of light mean safer, lower-cost tunnel operation

**Fluorescent lighting, central control, reliable power highlight G-E system at Brooklyn-Battery Tunnel**

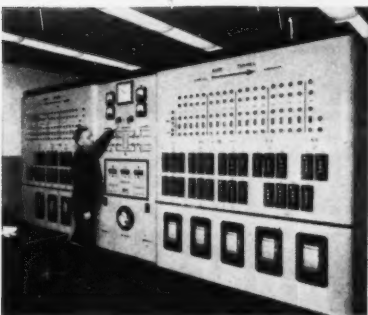
Now handling 16,000,000 vehicles a year with safety, comfort, and operating economy, New York's Brooklyn-Battery Tunnel provides an excellent example of modern tunnel electrical systems. Designed by engineers of the Triborough Bridge and Tunnel Authority and General Electric, this electrical system was the first to feature economical, variable-intensity fluorescent lighting. Centralized control and a coordinated power distribution system also contribute to operating economy and dependability.

Tunnels are just one of the many types of heavy construction projects on which General Electric is ready to assist your engineers or consultants in electrical system planning. Contact your local G-E Apparatus Sales Office. General Electric Co., Schenectady 5, N. Y.

664-24



**WELL-LIGHTED APPROACHES** lead to tunnel. In daytime, lighting inside the entrance is brighter to provide better transition from sunlight.



**CENTRALIZED CONTROL** permits one man to operate the complete electrical system—lights, fans, pumps and safety equipment.



**RELIABLE POWER**—a necessity for tunnels—is provided by G-E metal-clad switchgear. G.E. also builds fan and pump drives for tunnels.

**Engineered Electrical Systems for Heavy Construction**

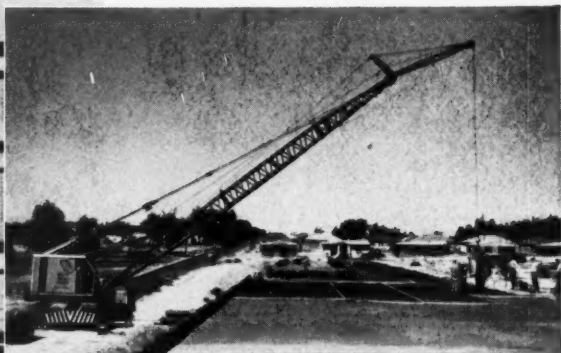
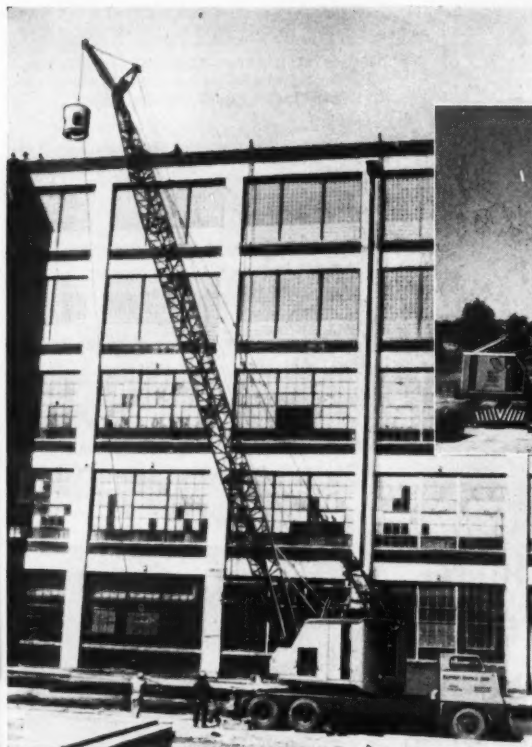
**GENERAL  ELECTRIC**

# All lifts are easier with a **CRANEMOBILE**

—for instance on placing concrete

—LIFT 'EM HIGH

—OR LAY 'EM OUT



Whether you are interested in placing concrete or in handling loads up to 25 tons, the flexible performance of the CraneMobile makes all lifts easier.

The CraneMobile is made in several sizes . . . will speed to scattered jobs . . . and is packed with refinements and operating advantages for handling long booms for high lifts or long reach and short booms for heavy lifts. Consider the accurate, fast, independent boom hoist which raises or lowers boom by power only . . . consider too, the pin-connected boom with socketed pendant cables for quick, easy boom length changes. Then there is the power load-lowering device for precision handling of heavy loads. And a collapsible hi-gantry permits lifting maximum recommended boom lengths from horizontal without other assistance.

That's only part of the story. Why not get complete information from your nearest BAY CITY dealer.

BAY CITY SHOVELS, INC., Bay City, Mich.

212

## WRITE FOR THIS BOOKLET

. . . just off the press. A handy pocket-sized booklet of facts and features showing why "all lifts are easier with a CraneMobile". It's yours for the asking . . . Write us.



# BAY CITY



SHOVELS • CRANES • HOES • DRAGLINES • CLAMSHELLS

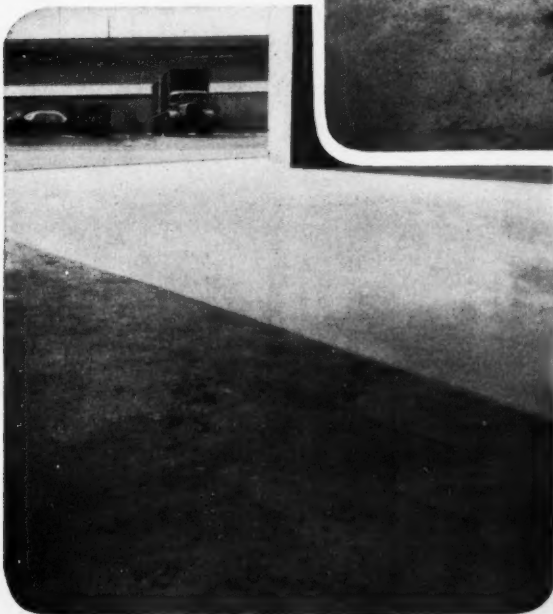




Constant Pounding  
Causes this—

## A QUICK PATCH for concrete walls and floors

Smaller areas, around  
large one, is in complete  
state of disintegration.



How **THORITE**  
Patching Mortar, repaired  
and added strength to  
loading platform in  
30 minutes



### BEFORE

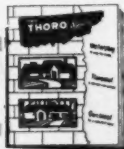
Largest area is 2' long  
and 18" wide, 1½"  
deep.

### AFTER

Thorite Patching Mortar has been  
brushed and troweled into patch and  
leveled, even with surrounding sur-  
faces.

Floor area was back in use, for  
heavy warehouse trucks, 30 minutes  
after beginning work.

Get our 20-page brochure pictorially  
describing in detail "HOW TO DO IT".  
It's yours for the asking!

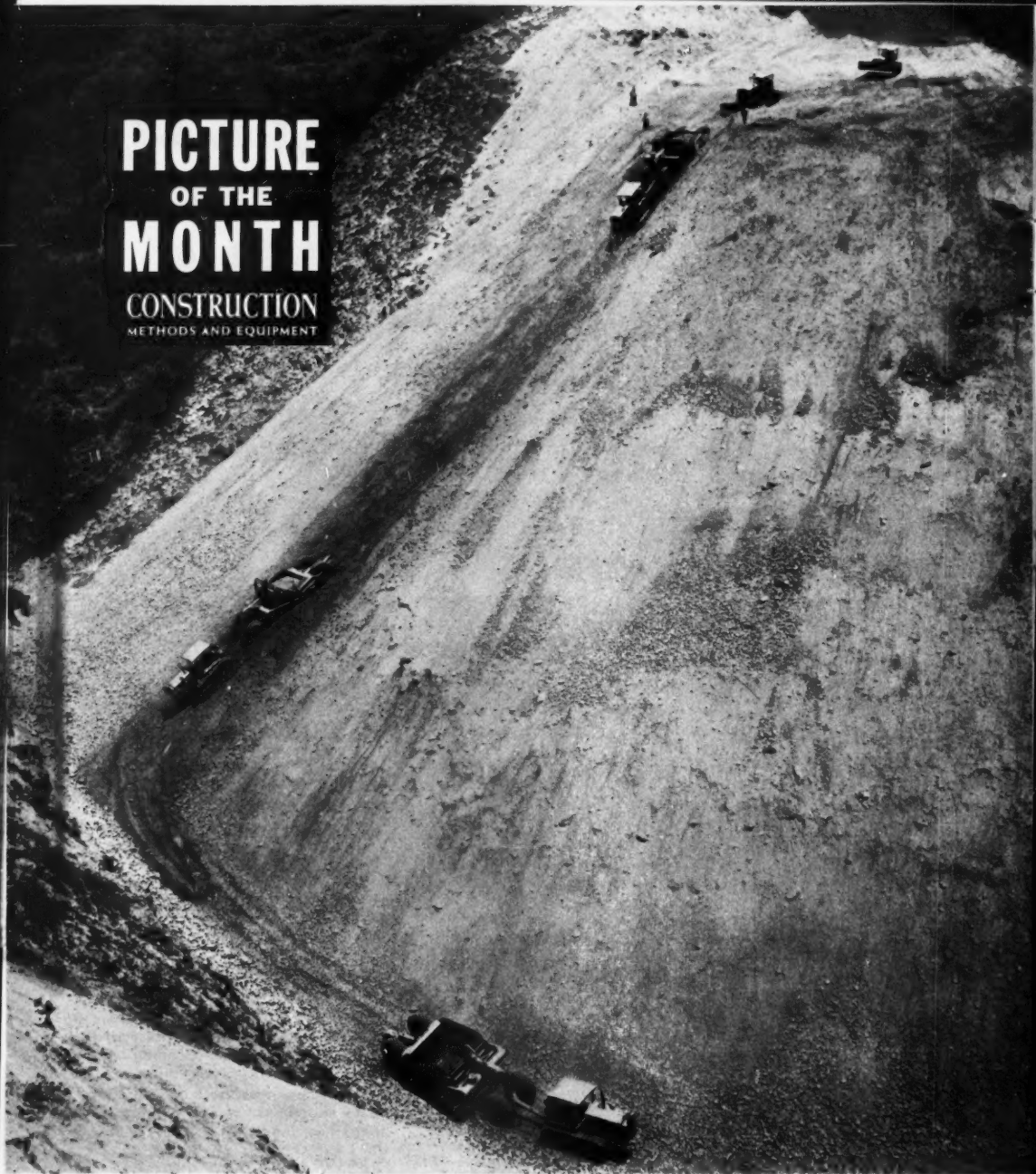


**Standard Dry Wall Products**  
**NEW EAGLE, PENNSYLVANIA**

Phone Monongahela 67

# PICTURE OF THE MONTH

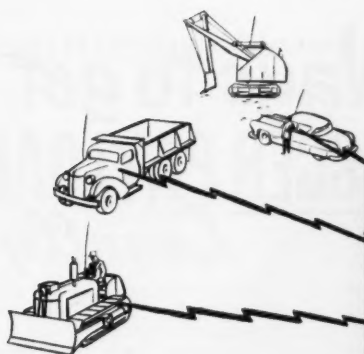
CONSTRUCTION  
METHODS AND EQUIPMENT



Hamilton Wright Photo

## You Can't Stop Them

FRONT APRONS ARE UP and bowls are dragging on these loaded earthmovers as they slide down a 60-deg incline with brakes locked to fill a 130-ft gorge on Venezuela's Autopista (superhighway) across the 6,000-ft Andes foothills along the Caribbean Sea. Yes, it takes longer to go back up again, over a route less steep than the "haul road" down the slot. Caterpillar D8 crawlers, pulling Caterpillar scrapers on deep cuts and fills, grade alternating ridges and valleys. Two D8's with bulldozers assist on the cut above and push fill down the slope. This U.S.-built equipment is being operated by Venezuelans for local contractors doing the earthmoving.



# Motorola 2-Way Radio

**MORE THAN  
PAYS FOR ITSELF  
IN EVERYDAY USE**



**Uni-Channel Sensicon Dispatcher** puts 2-way contact in every vehicle... takes jolts and shocks of rough roads... speeds every operation. Sealed-in selectivity ends 15 nuisance tuning adjustments forever. Obsolescence-proof circuits stay up to date for years to come.

**Motorola 2-way radio is built to give better service longer... every unit is backed by 24 years of experience in mobile radio.**



***Instant 2-way radio contact cuts costs, speeds operations on more and more private and municipal construction jobs***

Motorola radio centralizes control of wide-spread crews... co-ordinates operations... cuts "down" time... reduces travel time... gets men and equipment to the job faster. These savings pay for Motorola installations over and over again.

Motorola radio is ruggedly built, quickly installed, easily operated—a *hard-working* tool for day-in, day-out utility.

Motorola is today's greatest value in 2-way radio. Eight exclusive Motorola features guarantee precision selectivity... time-test durability... obsolescence-proof design. With Motorola you get simplified operation, rugged construction, outstanding dependability. Motorola engineering puts 24 years of electronics leadership into every custom-tailored installation. Write today—let a friendly Motorola engineer in your vicinity show you how Motorola 2-way radio can improve *your* business!

# Motorola®

Communications & Electronics Division  
4545 Augusta Blvd., Chicago 51, Illinois  
Rogers Majestic Electronic Ltd., Toronto, Canada



# 3 Ways to get **BIGGER PAYLOADS** *Legally!*

Your problem today is to deliver **BIGGER** loads of concrete and *still stay under highway weight limits*. You can solve the problem with any one of these three job-tested Smith-Mobile Truck Mixers. They permit better weight distribution, greater payloads and more take-home dollars. All carry NRMCA rating plates. Write for new bulletin.

## **SMITH-MOBILE** with Rear Engine Drive

Engine moved to rear of mixer, thereby cutting almost 20" off the over-all length. Enables you to move your mixer forward, thus shifting center of gravity and putting a bigger share of the load on the front axle. Gives you better weight distribution without using Cab-Over or Cab-Ahead type of trucks. Or, you can use a shorter wheelbase truck and get greater maneuverability. Both engine and transmission are completely accessible. Three standard **LOADLIMIT** sizes: 4½, 5½ and 6½ cubic yards as mixers, with higher ratings for agitators.

1



## **SMITH-MOBILE** with Truck Engine Drive

Mixer engine eliminated. Reduces dead weight of mixer by about 1300 lbs. Mixer can be mounted closer to cab, removing considerable weight from rear axle and putting it on front axle. Enables you to meet stringent rear-axle load restrictions. One engine instead of two also means less fuel consumption, less engine maintenance. Available for both **LOADLIMIT** and **CLOSED END** models, in 4½, 5½ and 6½ yd. sizes, higher ratings for agitators.

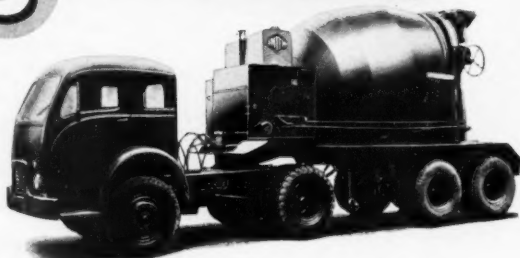
2



## **SMITH-MOBILE** Trailer Mixer

Enables you to carry from 8 to 9 yard payloads and still be within highway load limits. Most states are more liberal with payloads allowed on semi-trailers than they are with loads carried in standard truck mounted mixers. Trailer Mixer can carry up to 12,000 lbs. additional concrete, legally, depending on state regulations . . . is just as easy to maneuver in most cases. Tractor can also be used for many other purposes. Available for 6½ yd. mixer, 8¾ yd. agitator, **LOADLIMIT** and **CLOSED END** models.

3



**THE T. L. SMITH COMPANY**  
2851 N. 32ND ST. • MILWAUKEE 45, WISCONSIN



# CONCRETE MIXERS

For **BIGGER** and **BETTER** Concrete Mixers and Truck Mixers . . . LOOK TO SMITH



## Construction News in Pictures...



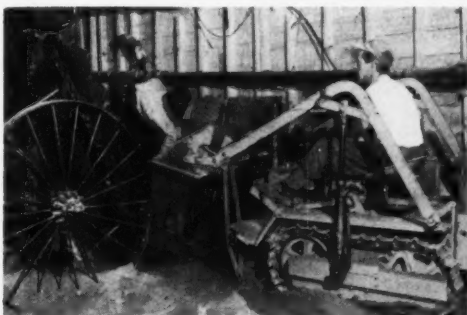
**NO SUPPORT**—This crane needs a crane, after thin slab of pavement gave way and dropped it into a watery hole. Accident occurred in St. Paul, Minn., when the big machine was brought in to dismantle a dredge docked along the Mississippi River. Better check that boom before using, boys.—Wide World photo



**MUD SQUEEZING**—Trucks, tractors and scrapers bring in fill for an experimental causeway in the San Francisco Bay area. Instead of dredging out 50-ft layer of underlying mud first, solid material is dumped to settle and squeeze soft material out, as shown along the sides.—International Harvester photo



**CANYON DELIVERY**—Partially dismantled Caterpillar D4 tractor arrives via cableway at bottom of 500-ft canyon after 1,500-ft trip from rim above. Other parts and bulldozer were brought down separately and assembled for canal-digging job in area accessible only by a tortuous trail. It happened near Redmond, Ore. Crawler was delivered to Opal Springs Water District.



**TRACTOR IN THE CELLAR**—Excavating under a 5-story wing of an office building in Wilmington, Del., an Agricat with shovel loader dumps into an elevating conveyor that loads dirt on truck outside. Contractor is Wark & Co., Philadelphia.



**DOUBLE TRUCKING**—Two White trucks with flat-bed trailers pick-a-back a 40-ton house in parallel formation on their way to a new location 3 mi from the original site in New South Wales. The structure was raised with 25 jacks and then lowered on the two trailers after they had been backed under it. The ornament at the chimney is not standard equipment.

## "IT IS EASY TO HANDLE AND DOES A PERFECT JOB". . .

The Schramm *Pneumatractor* this operator is describing, is working on a tough job for the Potter-DeWitt Corp., Pavilion, New York.



### SCHRAMM CONSTRUCTION TOOLS

ROCK DRILLS  
WAGON DRILLS  
PAVING BREAKERS  
CLAY SPADES  
TRENCH DIGGERS  
TIE TAMPERS  
DELUXE *Pneumafeed*  
*Pneumajack*  
BACKFILL TAMPERS  
TRACK SPIKE & FORM PIN DRIVERS  
VIBRATORS  
AIR GUNS  
PNEUMATIC SAWS  
PRUNERS  
BITS  
DRILL RODS  
AIR HOSE  
COUPLINGS

The operator finds the Schramm *Pneumatractor* a "vast improvement, now we don't have to wait for a dozer or truck. Just get on it and move it ourselves," he says. ". . . Change from tractor to air compressor or vice versa in an instant."

The Schramm *Pneumatractor* operates as both tractor and air compressor at the same time. It will PUSH, PULL, POWER anything a wheel tractor will, and PROVIDE AIR for any pneumatic tool that can be operated from a 105 cu. ft. air compressor.

You, too, will find the *Pneumatractor* ideal for your varied jobs. For full details, write today for Bulletin Neu-52.

## SCHRAMM INC.

*The Compressor People*

WEST CHESTER

PENNSYLVANIA

# *Specify* **UPSON-WALTON** *Drop-forged Clips*

Heavy, Steel U-bolt;  
hot galvanized after  
threading to prevent  
weakening from rust  
or corrosion.

Clip bases drop-  
forged under  
close supervision  
in accurately  
made dies. Bases  
made of high  
grade forging  
steel and hot  
galvanized.

American Standard  
heavy hex nut...  
hot galvanized for  
long life.



**ENGINEERED  
FOR SAFETY**



UPSON-WALTON drop-forged steel clips are made to the highest standards of quality for tough, heavy-duty service and *engineered for safety*. See your nearby distributor for quick and efficient service from stock. Write for free catalog on wire rope fittings.



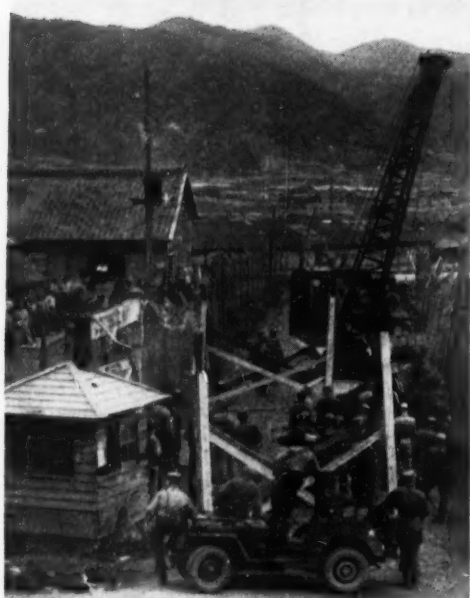
*Manufacturers of All Three:*  
FITTINGS • WIRE ROPE • TACKLE BLOCKS

**THE UPSON-WALTON COMPANY**

12500 ELMWOOD AVENUE • CLEVELAND 11, OHIO  
New York • Chicago • Pittsburgh

**YOU CAN DEPEND ON UPSON-WALTON'S 81 YEARS OF EXPERIENCE**

## CONSTRUCTION 'ROUND THE WORLD . . .



**HUNTING AN ESCAPE TUNNEL**—Everybody is interested as engineers of the 187th Regimental Combat Team operate a dragline between Compounds 76 and 77 on notorious Koje Island off Korea. The crawler-mounted dragline excavated between the two compounds in a search for possible tunnels Communist prisoners might have dug from one to the other.—Wide World photo



**STEEL FOR CONCRETE**—Reinforcing cage for concrete pile being completed by five Burmese workmen at Rangoon. Some 300 construction workers are building three rice storage sheds under ECA project. Structures will rise on reclaimed land, so pile-supported foundations are necessary. Each finished pile is 30 ft long; each shed requires 190 piles.—Eastern Publishers photo



**BAILING THE CAISSON**—Chilean construction worker empties water from bailing bucket suspended from portable timber tripod. Concrete columns are for bridge on Pan American Highway in Chile.—Wide World photo



**WIDENS ROADS, LOADS THE SPOIL**—England also has to widen pavements for motor traffic, once thought wide enough to accommodate future needs. This prototype road-widening machine digs a trench 2 ft deep and 2 ft wide and conveys excavated material directly into a truck which it tows along. Workmen shown are cleaning up dirt left by the machine in a ditch wider than normal cut. The unit is owned by the Gloucestershire County Council and was built by John Allen & Co., Ltd., Cowley, Oxford.



# UNI-FORM Panels

*Save Time... Beat The Weather*



Begin Forming Immediately  
Ready To Use When They  
Reach Your Job

PROGRESS  
IN  
10 WORKING  
DAYS



**FORMED, POURED, STRIPPED  
IN 10 WORKING DAYS**

**Battered Ore Wall . . . . 6' 6" Base . . . .  
48 ft. high . . . . 700 ft. long —**

Only UNI-FORM Panels could perform this tremendous feat!

- Use UNI-FORM Panels On Your Next Job
- They're rented with a purchase option
- Try BEFORE you Buy — you'll never regret it.



Send for the last word in mechanized  
forming . . . the UNI-FORM Panel  
Catalog. Sent without obligation.



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GENERAL OFFICES AND FACTORY  
**1242 N. KOSTNER • CHICAGO 51, ILLINOIS**

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**SWAMPSCOTT, MASS.** . . . . . 51 Barnstable St.

**Service Wherever You Build . . . Coast-to-Coast**

**Lead-Zinc Mining in Utah**—Bethlehem Hollow teams up with carbide-tipped bits on the 1500-ft level of the Mayflower Mine of New Park Mining Co. This jumbo-mounted drifter puts in 6-ft holes through abrasive sulphide ore bodies.



**Dam Building in Northwest**—Excavating work at the site of Chief Joseph Dam on the Columbia River called for more than 100 tons of Bethlehem Hollow. This is a recent addition to the long list of big projects where this "old reliable" of drill steels has had the responsibility for keeping drilling on schedule.



## Steel that chews rock from Vermont to California

Deep-holes, short-holes. Hard, abrasive ore . . . basalt . . . dolomite. Steel bits . . . bits with carbide inserts.

Whatever the depth of hole, type of rock, or style of detachable bit, there's one hollow drill steel that does the job from coast to coast, and does it well. It's Bethlehem Hollow.

Make sure you've got this old reliable on the job!

### IMMEDIATE DELIVERY

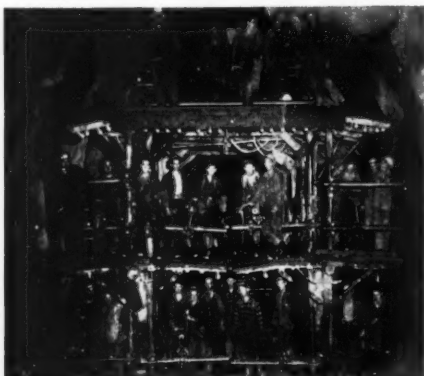
Bethlehem Hollow Drill Steel is ready to ship from our mill depot in all popular sections and sizes. Also available from local converters. And if you need solid drill steel, quarrying steels, auger drill steel, or steel for stone-dressing tools . . . remember to specify Bethlehem. Each steel is engineered to give a lot of service.



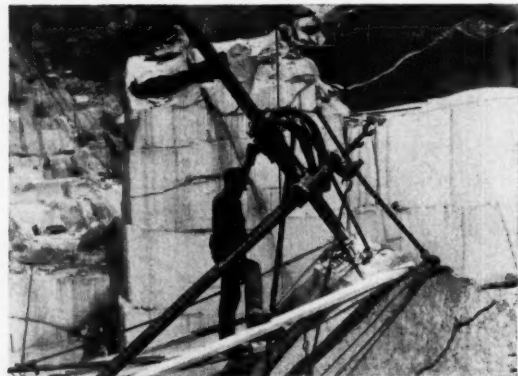
BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation, Export Distributor: Bethlehem Steel Export Corporation

**Buffalo Underpass Job**—Rock drilling doesn't stop for chilly weather in Buffalo. Here Bethlehem Hollow bores into hard, flint-streaked rock on an excavating job that removed 70,000 cu yd of rock on a four-lane underpass contract.



**California Tunnel Project**—Here's the three-story drill carriage and one of the crews that smashed three records for driving large-diameter tunnels. Big Creek Project No. 4 was the scene of this outstanding performance of Bethlehem Hollow.



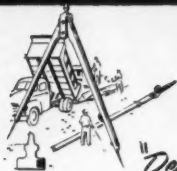
**Quarrying Vermont Granite**—A real test of drill-steel quality is provided by "Rock of Ages," a hard, dense-grained granite. This rock drill, using Bethlehem Hollow, is mounted on a movable saddle so that a line of holes can be drilled in perfect alignment. Quarries everywhere rely on Bethlehem Hollow.

# BETHLEHEM HOLLOW DRILL STEEL



**MARION**  
BODIES AND HOISTS

*More  
Less*



*"Designed on the Job"*

**MARION**  
BODIES AND HOISTS

**METAL PRODUCTS CO.**  
Marion, Ohio, U. S. A.

The workload capacity of any dump body is directly proportional to the efficiency of the hoist. That's why Marion Hoists turn out more work at less cost.

You see—Marion Hoists operate at a low uniform oil-pressure throughout the dumping cycle . . . regardless of load or dumping conditions. This means less wear and tear on vital parts and a smoother, more dependable dumping operation.

Consequently, Marion owners get more work . . . yet enjoy trouble-free operation, thus cutting maintenance and down time to a minimum.

This is just part of the story, your nearby Marion Distributor can give you all the facts and figures . . . or write direct. There's no obligation, of course.

*Manufacturing a complete line of standard and special Hydraulic Hoists and Dump Bodies*

**The Name Is**

# SURE-GRIP

**—for good reason!**



**SURE-GRIP**

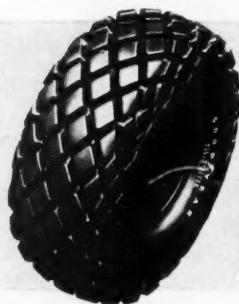
**in name and action**  
Drive-wheel traction champ  
for graders and scrapers.

**T**AKE a look at the tread design of this great Goodyear work tire and you can see why it's first choice for drive wheels on earth-moving operations everywhere — and why its name is a natural. For the Sure-Grip is the top tire for grip and pull. Its specially engineered O-P-E-N C-E-N-T-E-R tread and massive, balanced lugs provide high-hour traction without equal. *And cost-wise construction men know it.*

Sure-Grip, All-Weather—T.M.'s The Goodyear Tire & Rubber Company, Akron, Ohio



**THERE'S A COST-CUTTING  
GOODYEAR TIRE FOR EVERY JOB**



**ALL-WEATHER**

Finest for flotation, rolling big loads faster.



**HARD ROCK LUG**

Super-tough champ for all kinds of rock work.

# GOOD YEAR

**MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND**

We think you'll like "THE GREATEST STORY EVER TOLD"—Every Sunday—ABC Network



Harold W. Richardson, Editor

## Contractors, It's Your Money!

IN YOUR HIGHLY COMPETITIVE business, you contractors constantly strive to reduce cost of operations and thus enhance your competitive position. If you don't succeed, you don't get jobs.

You attend Road Shows and other equipment exhibits to see what's new that might cut costs. You band together in national and local associations to promote the welfare of your industry, to deal with labor, to watch and guide legislation—always with construction cost reduction in mind. And on the job you perform in most ingenious manner, using every clever trick at your command to build better, faster—and cheaper.

But most of you are overlooking one big cost-cutting bet—reduction of expensive accidents. This is not a blanket indictment of all contractors, for a few of you do carry on successful accident-prevention programs, and many others give at least lip service to safety on the job. And association activities, such as conducted by the AGC, are doing a world of good.

But by and large the construction industry is not safety conscious. Otherwise you contractors would attend national regional and local construction safety conferences set up for the very purpose of helping you save money by accident reduction. The proportion of contractor attendance at such meetings is pitifully low.

You are putting your safety activities all too much in the hands of owners' representatives and insurance carriers. They can help, of course, but the primary responsibility of construction accident prevention belongs to the contractors. We have warned you before, if you don't assume that responsibility you are going to find your operations hampered more and more by codes and restrictions.

Even a more glaring attest to the industry's general apathy toward safety is construction's standing 35th from the top of a list of 40 major industries in both accident frequency and severity, as reported for 1951 by the National Safety Council. Our frequency of accidents is 2.3 times the national industrial average, our severity is 2.6 times that average. And the record has been growing worse.

Fellows, this shameful record is costing you money, directly and indirectly, which certainly is no help to your competitive position. Do you realize that every accident results in indirect costs from four to seven times direct costs in job loss of time,

disrupted morale and other intangibles?

Your insurance premiums are but a small part of your total accident costs. And you can even reduce your compensation costs by reducing accidents to the point where you enjoy a premium credit. If you don't you're bidding against the smart contractor who does enjoy such a credit, and he's got an advantage over you right there.

There is nothing mysterious or difficult about construction safety. But it does require a grim determination on the part of top management—diffused down through supervisory forces to the last workman—that the job must be conducted in a safe manner. From there on, safety is simply a matter of eternal vigilance and application of common sense.


You have to keep awake to keep your men alive on construction. You have to indoctrinate them in safe working habits, you must see that equipment is in safe running condition and is operated safely.

You must be alert to every unsafe condition, such as unshored banks and trenches—the recent wave of fatal cave-ins is a disgrace to construction. You must plan the job with safety in mind for every move, and when you do that, you'll automatically come up with an efficient job.

And you should take a real interest in construction safety conferences. You can start right now by planning to attend or send a representative to the Construction Section, National Safety Congress, meeting Tuesday and Wednesday afternoons, October 21 and 22, at the Conrad Hilton Hotel in Chicago.

There you will hear how the Missouri Chapter AGC, is conducting a practical and realistic safety campaign among its members. You will learn about the Art and Science of Building Dollar Bills with Safety Engineering—money in your pocket. You will listen to an intelligent symposium of Why Construction Accidents? This is based on a factual study of thousands of accidents, and you'll have a better understanding of their cause. And you will be asked Why Contract with Eternity?—an excellent discussion of ways to avoid accidents.

It's your money, contractors, that you are needlessly spending for accidents.





NEARLY FOUR MILLION YARDS of rock, gravel and clay core are going into this high dam on Nechako river in isolated British Columbia 60 mi from nearest rail point, one of key jobs on big Alcan hydro and aluminum project. Here high-pressure jets from

tractor-mounted monitors wash down big rock dumped from Euclid trucks to consolidate fill. TD24 bulldozer below goes unconcerned about its business of spreading gravel fill that separates rock shoulders from clay core.

## Kenny Rock-Fill Dam . . .

### *A Construction Triumph in the Wilderness*

FROM THE EQUIPMENT SETUP and speed of operations, you would never realize that Kenny Dam is being built in the northern British Columbia wilderness 50 mi from the nearest rail point. A combined rock and earth core fill of 3,825,000 cu yd being built at a cost of \$20,-000,000, Kenny Dam is the key to the whole Alcan power development.

Rising 317 ft above the canyon floor, it will block the outflow from a series of lakes on the east slope of the Coast Range draining 5,000 sq mi, now escaping eastward through the Nechako River. The annual flow, estimated at 200 billion cu ft or 4,330,000 acre ft, will be tapped through a diversion tunnel to the powerhouse 110 mi west of the

•This is the first of a series of articles covering the construction features of ALCAN that fabulous hydro-electric power and aluminum plant project being built by Aluminum Co. of Canada in northwest British Columbia at a cost of over half a billion dollars. Construction operations at Kenny Dam, on the Nechako River at the extreme eastern end of the development, lead off this series. Next month we will have a front cover on another phase of the project, a map, full description of the entire development, and will feature construction details of another part of the work.—The Editors

dam, reversing the present drainage course.

Kenny Dam, 60 mi southwest of Vanderhoof on the Prince Rupert branch of the Canadian National R.R., 310 mi north of Vancouver, and 225 mi east of Prince Rupert, is a most unusual structure, requiring

new techniques in dam building. Downstream and upstream shoulders require 2,050,000 cu yd of quarry rock. Upstream face of the downstream shoulder is sloped at 45 deg.

Against this sloping face are alternate fills of gravel, impervious



**OUT IN THE QUARRY** Northwest 80D and Marion 111-M diesel-electric, part of a fleet of six shovels, load Euclid end-dumps with rock fill for 3,000-ft haul to dam while TD24 bulldozer keeps pit cleaned up and shoves big rock into shovel buckets. More than

2,000,000 cu yd of rock come out of this one quarry. In background is screening plant for separating 690,000 cu yd of gravel fill into three sizes. Gravel fill sandwiches sloping impervious clay core between outside rock embankments.



**BIG ROCKS**, up to 20 tons, are shoved over to within reach of the Marion 3½-yd shovel by a TD24 bulldozer for loading into Euclid trucks.

Pictures and information from International Harvester Co.

core, and gravel, buttressed by the upstream shoulder of rock. Gravel will total 975,000 cu yd, the clay core will amount to 500,000 cu yd. This is the first time a sloping clay core has been tried on such a large dam, but the design reduces the yardage of rock. Dam dimensions

are: height 317 ft, crest length 1,500 ft, crest width 40 ft.

Other design innovations include putting the clay core on a concrete slab base, 82x150 ft in area, containing 4,831 cu yd, guniting the entire abutment contacts at ends of clay core, and thorough grouting

of abutments underneath the gunite skin.

Morrison-Knudsen, Inc., contractors for the entire power development phases of the Alcan project, turned construction of Kenny Dam over to their Canadian subsidiary, Mannix Ltd., of Calgary. British Columbia International Engineering Co. Ltd. (BCIE) of Vancouver, are design engineers representing the owners.

First problem facing Mannix was to get to the job. To do this, they improved a few trails, then continued with a new road for the 60 mi from Vanderhoof to the site. All heavy equipment had to be moved in over this road, including 4 Marion diesel-electric 111-M 3½-yd shovels, 3 Northwest 80D 2½-yd shovels, 2 Bucyrus-Erie 54-B 2½-yd shovels, 2 No. 6 Northwest ¾-yd shovels, 1 P&H 155-truck crane, and these tractors: Caterpillar, 14 D8s, 1 D7, 1 D4, 1 D2; International, 7 TD24s and 1 TD14.

When the heavy equipment reached the end of the access road at the dam, some of it was taken



**POWDER CREW** loads top of quarry for supplemental shooting (main blasting is by coyote holes), as control tower in center directs empty trucks to free shovels by number signalling system. In back-

ground are repair and service shops to keep big array of equipment rolling. There are \$2,000,000 worth of spare parts on the job. The contractors are taking no chances on breakdown way out there.

upstream to ford the river at low water. Other units were ferried across at the site on log rafts handled by winch lines to start driving the diversion tunnel. This bore, 52 ft in dia and 1,430 ft long, was completed in August 1951. International tractor bulldozers carved out work benches in the thin overburden on the steep west side of the canyon. Compressors and drills were then ferried across to blast out the abutments.

A Northwest 80D dragline built the upstream cofferdam. To get this big rig down the canyon wall, TD-24 dozers built a gravel ramp down to river edge. Then the dragline was winched down the ramp by three TD24s, and, upon completion of the dike, it was pulled out the same way.

Rock placement started only last May, and the entire 2,050,000 cu yd of rock fill will be completed in November, an amazing schedule. Rock comes from a quarry 3,000 ft from the dam. Coyote holes 200 to 300 ft deep are driven into the quarry face 50 ft apart, and small

drifts lead off from the main headings. On May 5 a blast of 200 tons of dynamite was set off; on May 25th another 150 tons was shot, followed by a 175-ton blast on June 15. The explosive was 40% slow-velocity ammonia dynamite, yielding 1 cu yd of rock per 1½ lb of powder. Large rock is desired, and pieces up to 20 tons have been hauled into the fill.

#### **Six Shovels Load Rock**

Blasted rock is loaded into 10- and 17-yd Euclid end-dumps by six of the big shovels. Carrying 9 yd at a load, the 31 Euclid trucks used on the haul average a 6,000-ft round trip in 12 min, dumping a load into the fill every 45 sec. This keeps up for two 10-hr shifts 6 days a week for a daily average of 17,000 cu yd.

The Euclids roll from quarry to dam over a four-lane 50-ft haul road, well maintained and constantly sprinkled. This road is part of a 45-mi system built at the job. As they return for another load, each truck pulls past a central dis-

patching tower for assignment to a free shovel. The dispatcher, who has a full view of the entire quarry, hangs the truck number under a shovel number painted on the tower.

When the rock is dumped into the fill at the dam, it is washed down with powerful jets from monitors mounted on Caterpillar tractors. The water not only washes out dirt and fines, but the force of the jets helps consolidate the rock in the embankment. The jets operate at 75 psi, powered by Byron-Jackson diesel-driven pumps.

Clay for the impervious sloping core comes from a pit of inorganic glacial till about a mile from the dam. This pit is constantly worked over with TD24 tractors pulling routers with rakes on front that screen out the boulders. Natural material contains from 4 to 6% moisture, so to bring the clay up to controlled optimum moisture content, the borrow pit is sprinkled in the loading areas.

Fourteen 12-yd Tournapull



scrapers load and haul the clay to the dam. Selective loading is necessary for correct blend of materials, so loading runs vary from 60 to 400 ft long. The scrapers, push-loaded with TD24 tractors, make the 2-mi round trip in 10 min. The sloping clay core is being laid down in horizontal lifts from 6 to 10 in. thick, compacted with 16 to 22 passes of two sheepfoot rollers pulled by Cat D8s.

Pervious gravel fill, amounting to 690,000 cu yd, comes from low hills along the river upstream from the dam. Bank-run material is screened into three sizes: minus  $\frac{3}{4}$  in.;  $\frac{3}{4}$  to 3 in.; and 3 to 10 in., and is stockpiled near the dam. Here the various sizes are loaded out, as needed, by a Malo overhead loader on a TD24, and by small shovels for the short haul to the fill.

#### Core Contact Gunited

Guniting and grouting of the abutments are based on recommendations of Jim Hayes, chief field consultant for BCIE. Jim developed the procedure for two dams in Afghanistan, though there the gunite was placed only over seamy areas. At Kenny Dam whole contact area between clay core and abutments is being gunited from 1 to 2 in. thick, then diamond drill holes are systematically drilled through the coating for grouting.

The abutments are stripped with TD24 bulldozers, then finished off by hand for guniting. Hayes lists four main reasons for applying the gunite ahead of grouting: (1) To form a coating tending to force the grout down; (2) to force wider spread of low-pressure grout near the surface; (3) to permit more accurate determination of grout spread through weep holes in the gunite; and (4) for more effective tamping of clay core by providing a smooth tight contact clay to rock. The gunite mixture varies from 3 to 6 parts of dry sand to 1 of cement.

Grouting is by three stages. The first set of holes, 30 ft deep, is pumped full at 30 psi. The next set of holes is drilled 75 ft deep, and grouted at 150 psi. Final holes are 125 ft deep, filled at 200 psi, then tested at 300 to 400 psi. A few holes are carried deeper to reveal any possible cavities. Initial grout is thin, equal parts cement and water. This mix is gradually thickened to 0.6 parts water to 1 part cement for deep holes and testing.

Because of the isolated location of the dam, particular attention is



WHILE TD24 BULLDOZER strips south abutment in foreground, rock fill, gravel fill, guniting and grouting (at left) proceed on far bank. Stripes on opposite abutment delineate rock fill, gravel and guniting-grouting area for sloping impervious clay core, the latter an innovation in large dam building.



IMPERVIOUS CLAY CORE comes from this pit a mile from dam. TD24 bulldozer in foreground is stripping organic material; similar rig in center is ripping clay loose and also is removing boulders at same time with front-end rake. Clay is hauled to dam by fleet of Tournapull scrapers, one being loaded in background with TD24 pusher.

paid to the care of both men and equipment to make the project self-sufficient. The only access is the 60-mi 22-ft road hacked out of muskeg and brush from Vanderhoof, now well maintained by Cat 12 graders, and a 3,000-ft air strip built at the dam.

A base camp and the new nearby

village of Nechako accommodates the 1,200 workers and their families. Many families are erecting their own houses in the village from prefab sections purchased from the contractor. Water and electric current from a 700-kw diesel generator are supplied by the contractor. Wooden arch forms

from the diversion tunnel portals have been re-erected at the town-site for a theatre.

Local communication is by a 5-channel 75-w FM radio system, claimed by the contractor for 50% saving in supervisory personnel. Rogers-Majestic (Motorola) 2-way sets with an 8-mi range have been installed in 14 supervisor's Jeeps and 2 control stations. Three Portaphones with a 3-mi range are also used. Theoretically FM radio won't work in a bluff-studded area like this, but apparently the beams bounce off the rocky slopes to give good reception.

A straight-line FM system, with a repeater at half way, maintains contact between job and Mannix headquarters at Vanderhoof, which are tied in with the Vancouver office by teletype, and with other Alcan projects by AM radio.

Ample equipment shops and service facilities are maintained on the job. Just to be sure no breakdown ties up the work, the contractor carries a \$2,000,000 stock of spare parts—all for a \$20,000,000 job.

Heading up the entire Alcan project for the Aluminum Company of Canada from Vancouver headquarters are: P. E. Radley, manager; J. S. Kendrick and F. T. Matthias, assistant managers; and H. C. Jenkinson, chief resident engineer for all projects.

At Kenny Dam Harry Jomini is resident engineer for the Aluminum Co., Jim Hayes is chief field consultant for British Columbia International Engineering Co., and Bill Curtis is supervising the clay core for Engineering and Construction Services, Ltd., Edmonton. For Mannix Ltd., J. R. (Jack) Bremner is project manager and H. E. (Hak) Nielson is general superintendent.



**PROCESSED GRAVEL** for fill on each side of clay core is loaded at screening plant by Melo shovel on TD24 tractor. Gravel is graded into three sizes, with smallest being placed next to clay core, coarsest next to rock fill.



**LARGE GRAVEL**, up to 10 in., is worked into sloping bank of rock shoulder by TD24 bulldozer. Rock face slopes 45 deg. Guniting is under way at upper left.

### Saved by Safety Line

**EARL GREEN**, an iron worker on a large powerhouse job in Kentucky, recently was saved from a serious and probable fatal injury by using his safety line properly.

He was working on a scaffold along a column 98 ft up. A fellow worker, on the opposite side, began to move around the column and the scaffold tilted. Green fell off, but his safety line stopped him uninjured about 3 ft below the scaffold. He had taken the precaution to tie his line securely above him.



Score of scrapers, dozen bulldozers cut and fill for a shoofly as . . .

## Men and Machines Blitz Earthquake Damage

AN EARTHQUAKE shifted the ground in California and blocked three tunnels of the Southern Pacific Railroad just before dawn one night in July. Twenty-six days later the trains were running again.

It was a minor miracle, accomplished with extensive equipment resources deployed by seasoned construction men.

It was the worst earthquake since the disastrous San Francisco shocker in 1906. On its 48-mi run between Bakersfield (el. 414) and Tehachapi (el. 3967), the Southern Pacific had 15 tunnels. After the quake there were 13 tunnels and part of another.

Internal blocks sealed several tunnels. In another, the track was raised 6 ft above grade inside the tunnel and a crack ripped open across the top. One tunnel was shifted 8 ft toward its neighbor; the floor of the intervening valley buckled. Tracks snaked crazily along the right-of-way or were arched upward or left suspended

in mid-air where the earth rose or fell away with internal disturbances.

SP officials immediately asked the Morrison-Knudsen Co. to repair the damage with all possible speed. M-K at once set up a veritable dragnet over several western states to recruit men and machines.

Within 24 hr, earthmovers and operators were converging upon the Tehachapi Mountains from as far away as northern Idaho and Washington. Within 36 hr they had slashed out 3 mi of access roads from the nearest highway to the stricken mountain pass.

The face of the U-shaped canyon was changed in a hurry by 500 men experienced in earthmoving, tunnel work and railroading, using 130 units of major construction equipment they brought.

Working 20 hr a day, 7 days a week, they moved 1,250,000 yd of dirt to daylight (open-cut) two shattered tunnels and part of another, and built a shoofly (bypass)

around a fourth—for which repairs took too long to get the trackage back into early service.

On the job were 80 tractors, 38 carryall scrapers and two draglines making cuts 180 ft deep and filling in other spots as much as 130 ft to establish the new railroad grade. In addition, there were trucks, tunnel muckers, compressors, concrete mixers, pumps and portable floodlighting units to keep the job at fever pitch during hours of darkness.

Morrison-Knudsen had the prime contract but called in other local contractors and their equipment to expedite the work. Los Angeles District Manager James N. Wells spurred the job into action by rounding up the forces overnight. The veteran H. L. Leventon was project manager. Whitey Lee was tunnel superintendent, Ed Fitzgerald his assistant. Bert Perkins was excavation foreman; Jim Miller, master mechanic.

More photos on next page

**QUAKE DAMAGE REPAIR . . . Continued**



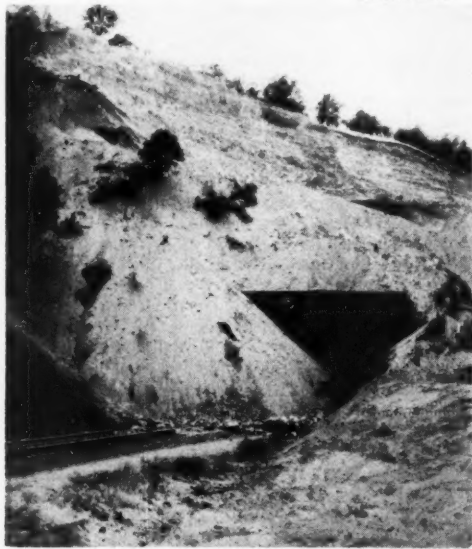
AT EAST PORTAL of damaged Tunnel 5 are compressors, concrete mixers, gunite machines, pumps, electric plants and materials for repair. It was bypassed temporarily to resume train service.



MUCKING OUT plug in Tunnel 5. In breaking through cave-ins, a top drift first was bored and timber roof supports set in. Some 200 aftershocks made tunnel repair an adventure to be remembered.



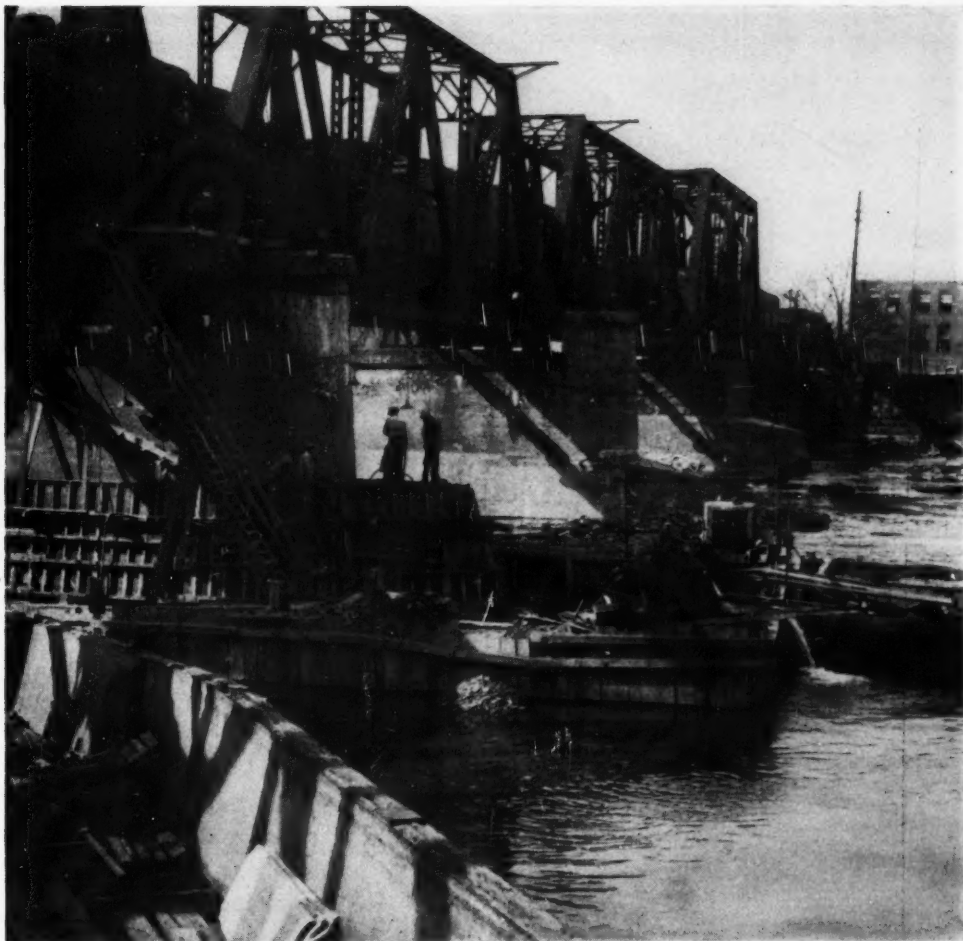
FLOOR HITS THE ROOF. Tracks inside Tunnel 4 had raised up 6 ft; lining was ruined. Caterpillar D8 dozes and Northwest dragline casts to make it a 180-ft cut. Old walls became retaining wall.



THEY SHALL NOT PASS through this tunnel anymore. East portal of No. 4 is partially covered as Caterpillar D8 benches the slope for deep cut to daylight the tunnel all the way.

Caterpillar photos





**Stone Bridge Piers Get Reinforced Concrete Support as...**

## **Air Tools Speed Tight Schedule**

THREE STONE PIERS and an abutment for the 580-ft B&O R.R. bridge across the Muskingum River at Zanesville, Ohio, were repaired and reinforced with concrete in a little more than three months by the George E. Detzel Co., contractors.

Of more than passing interest on the job was the almost 100% application of air-powered tools to carry out cofferdamming, excavation, sealing and concreting. Compressed air for the entire operation was supplied by a single compres-

sor—an Ingersoll-Rand Gyro-Flo 600, powered by a 6-cyl General Motors diesel engine.

The stone piers supporting the steel structure were badly damaged when the bridge was washed out during a flood in 1913. When rebuilt, the bases of the piers were encased in concrete. Through the ensuing years, the piers were eroded by the swift current of the Muskingum until it became necessary to restore the foundations.

As work began it was discovered that a large part of the footing of

one pier had been almost completely washed away. And the three piers and east abutment had to be repaired before the usual rainy season raised the river level and made work impossible.

To meet this deadline, the contractor used as much manpower and equipment as could be employed efficiently. Once a cofferdam was pumped out, as many as 40 men were put on the job on a three-shift basis.

Starting on the west pier, in relatively shallow water, workmen



**FILL POURS INTO COFFERDAM WALL** (total of 26 carloads) from rail cars overhead to create 100x60-ft cofferdam. River water,

pumped up 33 ft by a pneumatic sump pump, washes fill down chutes and makes placement easy within 12-ft wall.



**GROUT HOLES ARE DRILLED** with Ingersoll-Rand jackhammers into bedrock and original stone in pier after old concrete collars and rubble have been removed around base.



**PNEUMATIC CHIPPING HAMMER** cuts a groove 1 in. wide, 2 in. deep where new concrete collar meets stone of pier. Groove then is filled with Carey-Lastic to seal the joint.

first constructed a sandbag cofferdam around the pier and pumped it dry with Ingersoll-Rand pneumatic sump pumps. With air-powered I-R paving breakers, they next removed what remained of the old concrete collars and dug a trench 3 ft wide and 4 ft deep around the entire perimeter of the pier to reach solid rock.

The rock beneath the trench was solidified further by pressure grouting to a depth of 4 ft. Pneumatic jackhammers were used for this drilling operation and also to drill grout holes 6 ft deep into the stone pier spaced on 5-ft centers around the pier and every 3 ft in elevation.

After dowels and reinforcing steel had been placed, concrete was poured for the footing. A Pumpcrete machine placed the 49 yd of ready-mix and two I-R vibrators were used throughout the pour.

Forms 10 ft high were constructed on the footing and 128 yd of concrete were poured for the collar around the original stone pier at the rate of 15 yd per hr. The Pumpcrete machine and the air vibrators were used for all subsequent pouring.

After setting for two days and upon removal of the forms, the new concrete was sprayed with a curing compound. The collar slopes down from the old stone

pier and, at the joint between the two materials, a groove 1 in. wide and 2 in. deep was cut with air-chipping hammers and filled with Carey-Lastic.

The reinforcing collars are anchored to the piers by 1-in. dowels which were put into the grout holes in the stone piers during the grouting operation. The concrete is reinforced with  $\frac{3}{4}$ -in. vertical steel bars tied to steel dowels in the pressure-grouted rock bed. In addition, two staggered rows of  $\frac{3}{4}$ -in. deformed steel rods were placed horizontally, with one row 6 in. from the pier and one 6 in. from the outside of the concrete.

Pier footings and collars varied



AIR-DRIVEN GRINDER is used to make bolts. Single Ingersoll-Rand Gyro-Flo 600 compressor, powered by a 6-cyl General Motors diesel, supplied compressed air for the entire job.

somewhat in size to meet conditions of water and river bed. The largest (the east pier) required a footing 10 ft deep on the upstream end tapering to 5 ft downstream. The collar rose to 12 ft above the river bed. This pier is 50 ft long and 10 ft 9 in. wide at the bottom and tapers as it rises.

The midstream pier required a 6-ft sandbag cofferdam which was pumped out with four air-driven sump pumps and two gasoline engine-driven 4-in. pumps. The footing required 109 yd of concrete and the collar 83 yd.

The east pier stands in water as much as 12 ft deep and it was necessary to construct a wooden-framed cofferdam 100 ft long, 60 ft wide and with 12-ft walls. Twenty-six cars of fill were sent down two chutes into the dam from a work train on the bridge above. An air-driven, high-lift sump pump sent river water up 33 ft to wash the fill down the chutes and spread it. At the same time, pumps discharged water from inside the coffer. After preparation similar to the first two piers, the footing and collar were poured. Total amount of concrete for this pier was 224 yd.

Work on the east abutment started with construction of a cofferdam, after which all loose and disintegrated rock supporting the abutment was removed and the footing area excavated and cleaned out. It was found that the supporting stones were eroded to a depth of 2½ ft.

The work of cleaning out the footing excavation had just been completed when the river rose and washed out half the cofferdam. The dam was rebuilt and the area cleaned out again. As in the case



WOOD BORING with pneumatic tools. The job was almost 100% air-powered. There also were concrete vibrators, a grout mixer and Gunite machine, all air-powered.

of the piers, holes were drilled into the rock, heavy dowels and reinforcing steel placed, and forms built. The abutment required 165 yd of concrete.

Air tools and air power played a highly important part in the swift completion of this urgent project. Besides the pneumatic tools named above, the contractor used air drills for wood boring in the construction of cofferdams and forms, an air grinder for dressing tools and making bolts, a multi-vane air motor to drive the grout mixer and another for the Gunite machine. All this equipment was dependent upon the single I-R Gyro-Flo 600, a portable rotary compressor with a capacity of 600 cfm at 110 psi.

Project superintendent for Detzel was Ollie Privett.

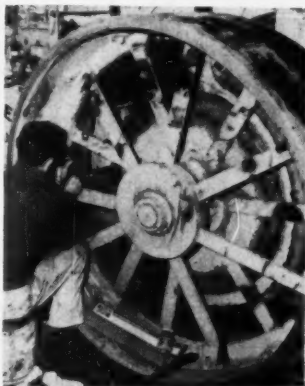
## No Overheating When Rebuilding Parts

WHEN A MAINTENANCE MAN endeavors to reclaim and build up a worn part on a piece of construction equipment, he must have complete respect for the critical temperature involved. Carelessness or inexperience usually results in warping or distortion of the part, if not in complete loss of temper.

Gus Waago, owner of Consolidated Welding Supply Co. in Phoenix, Ariz., had what he believed was the answer to low-temperature build-ups in his No. 13 flux-coated rod of nickel-silver made by All State Welding Alloys Co. Inc., White Plains, N.Y. He contacted Daley Construction Co., a local company with a lot of equipment, and convinced its men of the new rod's trouble-saving characteristics.

The photo below shows one of Daley's welders rebuilding the final drive pinion on a Buffalo-Springfield roller without disassembling the gears at all. He's also had extremely good results in building up final drive ring gears on his C-11 Tournapulls, and on many other finely heat-treated and costly parts often with savings of more than \$500.

The rod has been designed for general maintenance and salvage operations, has a shear strength of 160,000 psi and a Brinell hardness of 160-170. In application the



rod is deposited with an oxyacetylene blowpipe adjusted to a neutral flame. It's applied at a working temperature of only 1,750 deg F, which temperature is signalled by a highly fluid appearance of the flux.

## Here Is Job Practice for

①



### PLAN AHEAD OF COLD WEATHER

CONSULT WEATHER REPORTS — SECURE NECESSARY EQUIPMENT AND MATERIAL, WELL IN ADVANCE OF COLD WEATHER; SUCH AS HAY, TARPULINS, SALAMANDERS, PORTABLE HEATERS, KEROSENE TORCHES, CONCRETE MIXER HEATERS, STEAM GENERATORS, INSULATING MATERIALS.

### ② HEATING OF MATERIALS

A 30° AND ABOVE; HEAT MIXING WATER  
B 30° TO 0°; HEAT MIXING WATER & FINE AGGREGATE.  
C BELOW 0°; HEAT WATER, FINE AND COURSE AGGREGATE.

BRING CONCRETE TEMPERATURES TO BETWEEN 50° & 90°. AVOID APPRECIABLE TEMPERATURE FLUCTUATIONS FROM BATCH TO BATCH BY CONTROLLING MIXING WATER TEMPERATURES. AVOID "FLASH SET" (CEMENT COMING IN CONTACT WITH MATERIALS HEATED IN EXCESS OF 100°), OVERHEATING AND EXCESSIVE DRYING. COVER STOCK PILE AGGREGATE WITH TARPULINS WHILE HEATING TO INSURE EVEN DISTRIBUTION.



### ③ ACCELERATORS

CALCIUM CHLORIDE ACCELERATES SETTING ONLY. DON'T USE MORE THAN 2% BY WEIGHT OF PORTLAND CEMENT WITHOUT SPECIFIC APPROVAL. NEVER USE IT WITH POZZOLITH OR METALLIC FLOOR HARDENERS.



### AND ANTI-FREEZE

SALTS, CHEMICALS OR OTHER FOREIGN MATERIALS TO LOWER THE FREEZING POINT OF CONCRETE SHOULD NOT BE USED.

### ④ CURING TEMPERATURES FOR

NEWLY PLACED, NORMAL CONCRETE, KEEP TEMPERATURES AT APPROXIMATELY 50° FOR 7 DAYS OR ABOUT 70° FOR 3 DAYS. MAINTAIN 40° FOR NEXT 4 DAYS. SURFACE TEMPERATURES SHOULD NOT EXCEED 100° DURING CURING PERIOD. AVOID A RAPID TEMPERATURE FALL IN CONCRETE WHEN REMOVING PROTECTION, NOT MORE THAN 40° IN 24 HOURS.





# Cold Weather Concreting

⑤



## TEMPERATURE RECORDS

SHOW DATE, HOUR (MORNING & AFTERNOON), LOCATION OF READINGS, HIGHEST AND LOWEST TEMPERATURES OF CONCRETE SURFACE AND ANY CONDITIONS THAT MIGHT AFFECT TEMPERATURE OF CONCRETE.

⑥ PROTECTION

ARRANGEMENTS FOR COVERING & HEATING OF NEWLY PLACED CONCRETE SHOULD BE MADE IN ADVANCE TO MAINTAIN TEMPERATURE & MOISTURE CONDITIONS AS MENTIONED ABOVE. ARTIFICIAL HEAT WILL NOT BE REQUIRED FOR FLAT SLABS ON GROUND FOR TEMPERATURES ABOVE 30°F IF SURFACE IS WELL PROTECTED WITH INSULATING MATERIAL. LOWER TEMPERATURES REQUIRE DISTRIBUTED ARTIFICIAL HEAT INSIDE COVERINGS AROUND CONCRETE TO MAINTAIN A TEMPERATURE OF 40°F MIN. AND MAX. OF 80°F. MATERIALS FOR HOUSING; WOOD, SHEETROCK, CELOTEX, CANVAS, TARRED PAPER, PLYWOOD OR MATERIALS REASONABLY TIGHT & SAFE FROM WIND, SNOW & FIRE.

NEWLY POURED FLOOR SLABS SHOULD BE COVERED AS SOON AS POSSIBLE. LEAVE AN AIR SPACE BETWEEN CONCRETE AND COVER TO PERMIT MOVEMENT OF HEATED AIR. HOUSING & ENCLOSURES TO BE LEFT IN PLACE FOR ENTIRE CURING PERIOD.



⑦ REMOVAL OF FORMS

SUPPORTS, FORMS, ETC. FOR CONCRETE SHOULD REMAIN UNDISTURBED UNTIL SUFFICIENT STRENGTH IS ATTAINED TO SUSTAIN ITS OWN WEIGHT OR ADDITIONAL LOADS. BEFORE REMOVING FORMS, THE SUPERINTENDENT IN CHARGE SHOULD GIVE HIS APPROVAL BASED ON CONSIDERATION OF DATE CONCRETE WAS PLACED, RECORD OF TEMPERATURE CONDITIONS, PROBABLE CONCRETE STRENGTH & FUTURE LOADINGS.

CONCRETING OPERATIONS no longer shut down when cold weather blows in. Contractors apply their know-how, their ingenuity for handling tough situations and liberal doses of newer materials, processes and equipment to keep out Old Man Frost while they push the job along. The sketches and instructions for cold weather concreting on these two pages are featured by The Austin Company, Cleveland, on a large wall chart. Austin district managers send these charts out to all job locations in the cold-weather belt right after Labor Day with instructions to post them prominently in each job office where they serve as a constant reminder to supervisors. They have been quite effective, but Austin does not stop there. In addition, superintendents are brought in for brief refresher courses on specific procedures. A typical meeting included the demonstration of various types of job heating equipment.





Across swamps, through heavy timber, and along rocky hillsides . . .

## Big Pipeline Pierces Canadian Rockies

By Harold W. Richardson, Editor



SEVERAL ROUTES, including one through northern Washington, were surveyed before this final location, mostly along main line of Canadian National through Yellowhead Pass, was adopted. Because of lack of roads through Rockies, pipeline follows close to railroads.

OUT IN THE RUGGED Rockies of Alberta and British Columbia they call it the **RIPLEY—Roughest Inch** Pipe Line Ever Yet. That 24-in. oil pipeline extending for 711 mi from interior Edmonton to Pacific tidewater at Vancouver is well named. There have been more ups and downs in pipelines built across the Allegheny Mountains in Eastern United States, but for tough access, grading, ditching, stringing and transportation conditions, this Canadian job just about tops them all.

For 200 mi through the mountains from Jasper west to Vavenby there are no roads except miserable trails, so all pipe, equipment, trail—  
(Text continues on page 65)

## Clearing, grading and trenching prepare right-of-way for pipelaying



**BULLDOZERS**, such as these Cat D8s on the Mannix spread in the Thompson Valley, grade the 60-ft right-of-way to 50-ft flat width.

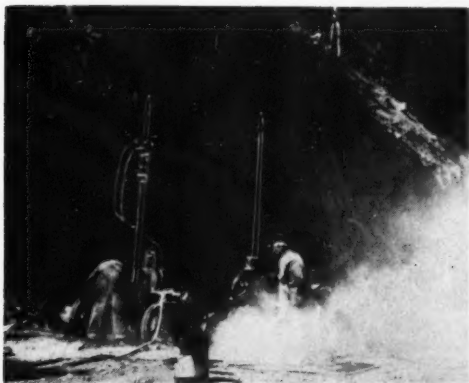
Trench in fill is prohibited, so grading must be carried down to solid ground.



**CLEARING CREWS** fell and cut up large trees with gas-driven chain saws, remove brush with bulldozers. All merchantable timber is salvaged. Weather stations gage humidity to determine proper time for brush burning.



**THIS CLEVELAND TRENCHER** on the Mannix spread doesn't work often. It takes a backhoe, like that Northwest in the background, to handle the wet, boulder-filled or rocky ground that predominates.



**HIGH ABOVE** the Thompson River a wagon drill outfit cuts down a rock ledge to a flat berm for Mannix. Tractor sideboom-mounted wagon drills will later drill out the trench for blasting.



**CRANE AND CLAMSHELL** is the best outfit for excavating blasted rock from the trench. This P&H rig is on the Mannix spread. The terrain is typical of the Thompson Valley.

## Cranes, tractor sidebooms and trucks handle pipe from car to trench



**PIPE HANDLING** starts at railroad sidings. At Jasper, Canadian Parkhill transfers pipe from car to truck with A-frame derrick powered from truck take-off. Pipe is 32 to 40 ft long.



**OUT ON LINE** Canadian Parkhill unloads and strings pipe with International tractor sideboom. They use Athey track wagons, pulled by tractors, for hauling pipe through swamps.



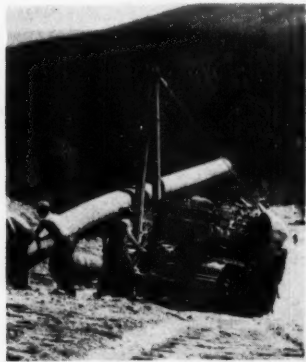
**HYSTER CRANE** on Cat D7 unloads pipe for Arrow. Bulldozer on other end of tractor cuts out shoofly connections between access roads and pipeline right-of-way.



**COMSTOCK MIDWESTERN** uses this Cody hydraulic horizontal bender to shape the pipe to conform to the meandering trench. Rough terrain calls for large proportion of bends in pipeline.



**TRACKSON SIDEBOOM** on Cat D7 juggles pipe into CRC vertical cable bender on Mannix spread. Often both vertical and horizontal bends are required in single pipe length. Frequency of bends precludes doubling up of joints.



**RATHER THAN MOVE** bending machine constantly, Mannix whips pipe lengths from line to bender and back with sidebooms.



er camps and supplies must be moved by rail and delivered from Canadian National R.R. sidings. Here the pipeline crosses muskeg, swamps, raging torrents, and volcanic ash deposits. It weaves from valley bottoms to high and steep rocky sideslopes. As ditching machines are of little use, trenches are laboriously cut out by backhoes and clamshells, aided by blasting in rock sections. Yet, despite all difficulties, each of three pipelaying spreads is advancing close to a mile a day.

The line is being built by Trans Mountain Oil Pipe Line Co., a combination of six American and Canadian oil firms. Canadian Bechtel, Ltd., are engineers, agents and construction supervisors for the owners. Mannix Ltd., of Calgary, and Comstock Midwestern Ltd., of Toronto, are principal pipeline contractors.

Because of lack of access other than by rail, and because the railroad traverses the most favorable terrain, the pipeline follows the Canadian National R.R. main line for 511 mi from Edmonton, across the Rockies to Kamloops, crossing the Continental Divide at El 3721 at Yellowhead Pass west of Jasper (see map). From Kamloops the route cuts across a 4,000-ft plateau to Merritt, then follows a branch of the Canadian Pacific down rugged Coquihalla Canyon to Hope and thence along the Fraser River to a terminal tank farm at Burnaby, next to Vancouver. There

are 61 river crossings, including major crossings on the Fraser and Thompson. The pipeline route was laid out by aerial surveys tied in with ground controls.

Trans Mountain is building the pipeline at a cost of \$86,000,000 to move Alberta crude to Pacific tidewater. The pipe is 24-in. dia throughout, with sidewall thickness varying from 3/4 in. for stream crossings to 1 1/4 in. on the plains at either end of the line. Hydraulics determines wall thickness; maximum internal pressure will be over 900 psi. Some 150,000 tons of pipe is being supplied by three U.S. Steel firms: Consolidated Western, Kaiser, and A. O. Smith.

Started only last March, the project is scheduled to go into operation in September 1953. Three pumping plants are planned at present, for Edmonton, Marlboro and Kamloops, which will give the line a capacity of 120,000 bbl per day. Later the output can be boosted to 200,000 bbl per day by addition of three more pump stations. Gate valves are being installed about every 20 mi, and at major stream crossings.

Except for a few deep ravine crossings, which will be bridged, the entire line is buried in 5-ft trench. Standard precast concrete weights will hold down the pipe across streams, and additional half-weights are being cast on the job for some troublesome water conditions across swamps.

Right-of-way / is 60 ft wide,

cleared to 50 ft. Side hills are graded down to a 50-ft flat berm, and no fills are permitted. Location through mountain valleys and canyons was complicated by the presence of railroad tracks and reservation for a future transcontinental superhighway along the same route.

Comstock Midwestern has two sections of the pipeline, 350 mi on the east end from Edmonton to Blue River and 150 mi on the west end from Merritt to Vancouver. Mannix Ltd. has the 220-mi intervening section from Blue River to Merritt. Mannix started with one spread at Vavenby, working 50 mi north to Blue River, then doubling back to work south toward Kamloops and Merritt. Comstock Midwestern started two spreads working both ways out of Red Pass, and in early September started an additional one in the Fraser Valley east of Vancouver. The Canadian Pipe Line Construction Co. Ltd. is presently building the 19 mi. from Edmonton west to Acheson. There will be five to seven spreads working next spring, after the winter layoff, to rush the line to completion.

Building the pipeline is largely a problem of logistics. Existing roads in the Rocky Mountain section from Jasper 200 mi west to Vavenby are mere trails, impassable much of the time. And there are few roads in the plateau country south of Kamloops. Therefore, pipe, equipment and supplies must be delivered

## What It Takes to Build a Pipeline

### Major Equipment List, Excluding Grading Subs

#### MANNIX LTD. (one spread)

- 9 Caterpillar D8 tractor angledozers
- 9 Caterpillar D8 tractors, Trackson sideboom cranes
- 3 Caterpillar D7 tractors, Trackson sideboom cranes
- 3 Caterpillar D7 bulldozers
- 1 Caterpillar D6 backfiller
- 2 Caterpillar D4 tractors
- 1 Allis-Chalmers HD7 tractor
- 1 Tournapull scraper
- 1 Caterpillar 12 grader
- 1 Buckeye 48 ditcher
- 1 Cleveland 320 ditcher
- 17 Lincoln 300-amp welders
- 1 Hobart 300-amp welder
- 7 P&H backhoes and cranes
- 2 Northwest backhoes
- 2 Bucyrus-Erie backhoes
- 1 CRC cable pipe bender
- 1 Crose clean and prime machine
- 1 Perrault coat and wrap machine
- 1 Homelite portable generating plant
- 1 LeTourneau ripper

- 6 Portable compressors, I-R, Sullivan, LeRoi
- 12 Pumps
- 7 I-R wagon drills
- 2 I-R paving breakers
- 5 CRC dope pots
- 10 Light plants, Kohler and Caterpillar
- 5 GMC trucks
- 4 Fargo power wagons
- 2 Ford tractor semi-trailers
- 4 Ford trucks
- 1 Ford bus
- 9 Mercury trucks
- 15 Mercury pickups
- 1 Chrysler sedan
- 1 Plymouth ambulance
- 4 Willys Jeeps

#### COMSTOCK MIDWESTERN LTD (west spread)

- 8 Caterpillar D8 tractors, Trackson side-booms
- 2 Caterpillar D7 tractors, Trackson side-booms
- 2 Caterpillar D6 tractors

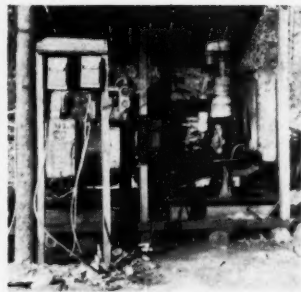
- 1 International TD14 tractor
- 1 Allis-Chalmers HD19 bulldozer
- 3 Caterpillar D8 sideboom drill rigs
- 1 Allis-Chalmers HD10 tractor
- 3 Bucyrus-Erie 228 backhoes
- 3 Lorain 51 backhoes, 1 yd
- 1 Lorain 41 backhoe, 3/4 yd
- 2 Unit 3/4-yd backhoes
- 1 Lorain 51 crane
- 16 Lincoln 300-amp welders
- 1 Crose clean and prime machine
- 1 Perrault dope and wrap machine
- 1 Cadv hydraulic bender
- 6 Ford F-6 winch trucks
- 2 Ford Marmon-Herrington 4x4 trucks
- 1 Ford 6x6 gas truck
- 16 Ford pickups
- 3 Jeep pickups
- 6 Dodge power wagons
- 3 I-R portable compressors
- 1 Schramm portable compressor
- 1 Buckeye 48 ditcher

Similar layout for east spread

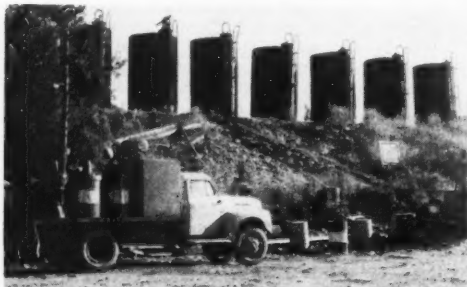
## Rear echelon keeps front-line operations going at top speed



BASE OF EACH SPREAD OPERATION is aluminum trailer camp headquarters containing roller dormitories, kitchens, mess halls, refrigerated storage, parts supply, offices and radio stations. This is Mannix camp at Vavenby.



PORTABLE GENERATING plants like this Caterpillar unit on Mannix spread make possible many comforts of home in camps.



FUEL DELIVERIES are precious in isolated mountain areas, so Mannix stores diesel fuel in these seven big tanks set up alongside railroad siding at Vavenby, where fuel trucks are loaded.



GOING MAY BE TOUGH, but somehow these heavy-laden fuel and grease trucks manage to reach every unit on line once a shift. Here a Northwest backhoe receives sustenance.



REPAIR FACILITIES, vital to vast array of pipeline equipment, are limited to crude ramps and outdoor shops in fast-moving camp headquarters, with emergency repairs made in field from truck outfits.

through sidings along the railroads.

Wherever possible, the contractors improve existing trails to accommodate the heavy-laden pipe stringing trucks. Elsewhere they had to build new access roads. Between Jasper and Red Pass they took advantage of an abandoned railroad bed. But, in general, trans-

portation is a tough battle, the major problem of construction.

Because of lack of accommodations in the few towns along the line, spread crews live in trailer camps, moved 30 to 50 mi at a jump. Made up of the big van-type aluminum semi-trailers, these camps are surprisingly comfort-

able. Each is well-equipped with rolling dormitories, kitchens, refrigerated store rooms, wash houses, offices and parts storage.

Field headquarters stations have been set up at Edmonton, Jasper, Red Pass, Kamloops and Vancouver, all connected by teletype over Canadian National wires. Local communication is by Rogers-Majestic (Motorola) radios between camps and supervisory station wagons and trucks. Radio reception is good up to 20 or 25 mi, though some relays are necessary because of mountain interference.

Road, clearing and grading crews work well ahead of the trench and pipe gangs, usually from small advance camps. But where the going is rough, grading outfits are often pressed from behind, and work two shifts from dawn to dark. Weather stations have been set up in Jasper Park and other wooded areas to constantly check the humidity as a guide when it is safe to burn brush. All merchantable timber is salvaged.

About every available siding in  
(Text continues on page 72)

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**From single lengths to continuous pipeline—here's how they do it**



**INTERNAL EXPANDERS**, operated by long-handled crank screw and linkage arrangement, aligns joints for stringer bead.



**AFTER PIPE IS TACKED** together into continuous line by stringer beads, beveled fillets are filled in with hot pass welds. Welding machines are mounted on truck, which also handles skid blocks.



**LONG-HANDLED CRANK**, extending through new pipe length, operates internal expander to hold pipe sections in line.



**WELDING GANG** following hot pass crew applies cap to complete welded joint. Mannix mounts 300-amp Lincoln welders on pipe skids. Machines, pulled by small tractors, leapfrog each other.



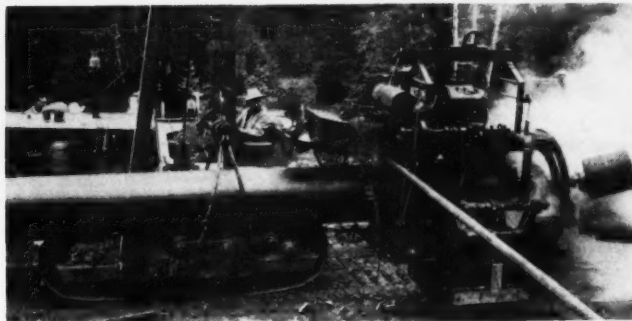
**RUBBER TIRE MOUNTING** for Lincoln welders is preferred by Comstock Midwestern for their welding gangs that finish up the joints.



**CROSE CLEAN AND PRIME MACHINE** crawls along pipe under own power removing rust and scale and applying prime coat of bitumen. Trackson sideboom lifts pipe off skid blocking.



## Final details in finishing the line and putting it into the ground



**TRACKSON SIDEBOOM** with rolling sling lifts pipe for Perrault coat and wrap machine, putting final touches on pipeline with bitumen-impregnated Fiberglas and asbestos wrapping, most exacting process in pipeline construction.



**UTILITY TRUCK** for tie-in gang closing up long sections carries portable cutting and beveling machine (left) and spare expander.



**PRECAST CONCRETE COUNTERWEIGHTS** are specified for river crossings, but Comstock Midwestern had to use them also in water-filled trench in upper Fraser Valley swamps. Additional half-weights are precast on job.



**END JOINTS** must be perfect, so every pipe section is cleaned and buffed with this self-propelled Homelite outfit before welding.



**LOWERING IN**, final step in pipeline handling, is done with husky Cat D8s and Trackson sidebooms. Tractor cranes leapfrog each other to jockey long pipe sections into trench with belt slings.



**TYING IN SECTIONS** from 3,500 to 5,000 ft long is exacting work, as pipe must be aligned by sidebooms only.

# ***Stoody Alloys*** ***save shovel parts!***

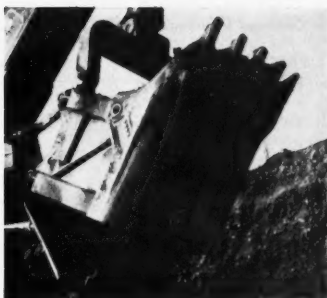
**Hard-Facing restores life at a  
fraction of new part cost!**

You can get new and longer life from worn shovel parts by hard-facing with Stoody Alloys! Cost of reclamation is far less than for new parts. Regular maintenance procedures thereafter save costly down-time, spare parts inventory and needless replacements.

Check your shovels today against the suggested rebuilding operations pictured at the right. Detailed manual procedures are described in the new revised **STOODY GUIDEBOOK**. Get it from your Stoody dealer or by mail.

Custom welding shops equipped to handle automatic rebuilding work are located in every section of the United States and Canada. Write for list of shops near you.

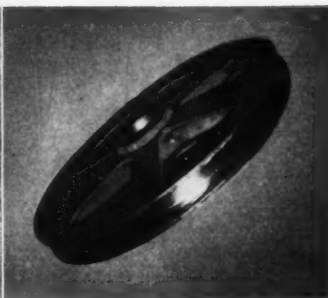




- 1 BUCKET TEETH, LIPS, SIDES, BOTTOMS**  
 ALLOY: Stooddy Self-Hardening 21 or Stooddy 1027.  
 APPLICATION: Manual—stringer beads or solid overlays on wear areas.  
 RESULTS: Maintains size, reduces wear, retains full bite and load.



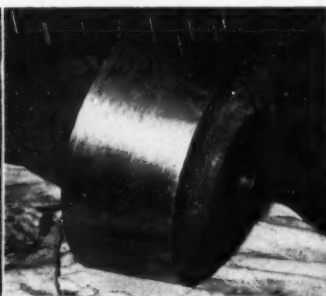
- 2 LATCH PLATES AND KEEPERS**  
 ALLOY: Stooddy Self-Hardening or Stooddy 1027.  
 APPLICATION: Manual—build to size andpeen to shape while red hot.  
 RESULTS: Effects positive latch closure. Negligible cost.



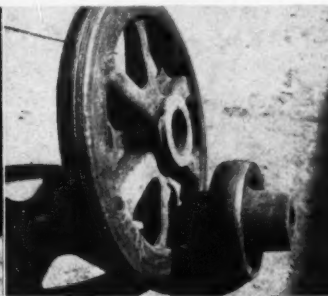
- 3 SHEAVES**  
 ALLOY: Stooddy 104 or Stooddy 107.  
 APPLICATION: By automatic—machinable deposit.  
 RESULTS: Prevents grooving, increases rope life.



- 4 HOUSE BASE RINGS**  
 ALLOY: Build up with Stooddy 104, finish with Stooddy 107.  
 APPLICATION: By automatic—machinable surface.  
 RESULTS: Reclamation  $\frac{1}{4}$  of new ring cost.



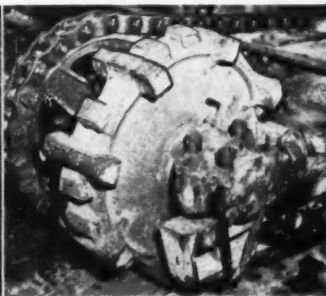
- 5 HOUSE ROLLERS**  
 ALLOY: Stooddy 107.  
 APPLICATION: By automatic—machinable surface.  
 RESULTS: Restores contour, doubles life at  $\frac{1}{3}$  the cost.



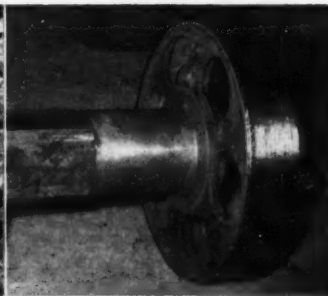
- 6 SHOVEL IDLERS AND ROLLERS**  
 ALLOY: Stooddy 105.  
 APPLICATION: By automatic—no finishing necessary.  
 RESULTS: Restores wearing faces, doubles life at  $\frac{1}{2}$  original cost.



- 7 TRACK PADS**  
 ALLOY: Stooddy 1027.  
 APPLICATION: Manual—rebuild with Stooddy High Carbon, overlay with Stooddy 1027.  
 RESULTS: Doubles life at  $\frac{1}{2}$  cost.



- 8 DRIVING TUMBLERS**  
 ALLOY: Coated Stooddy Self-Hardening or Stooddy 1027.  
 APPLICATION: Manual—rebuild drive lugs.  
 RESULTS: Doubles life at  $\frac{1}{2}$  original cost.



- 9 SWING BRAKE DRUMS**  
 ALLOY: Stooddy 106.  
 APPLICATION: By automatic—machine to finish.  
 RESULTS: Illustrated type reclaimed for 15% of new cost, outlasts new drum.

See the "yellow pages" in the phone directory for your local Stooddy dealer, or write for dealer list and complete literature

## STOODDY COMPANY

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### TRANS-MOUNTAIN PIPELINE...

Continued from page 69

the mountain sections is used for pipe unloading and storage. Arrow Transfer Co., Ltd., is subcontractor for Mannix for unloading, hauling and stringing pipe. Canadian Parkhill Pipe Stringing, Ltd., Toronto, is doing the same job for Comstock Midwestern. Both operate a fleet of trucks and long-bolster trailers for hauling, side-boom tractor and truck cranes for handling, and bulldozers for winching trucks up steel slopes and through mud holes. The bulldozers also cut shoofly connections between road and right-of-way for the pipe trucks. Canadian Parkhill often uses tractor-hauled Athey track wagons for pipe haul in swamp areas.

Construction operations are depicted in the accompanying pictures. There is nothing unusual about these operations, except as they apply to the difficult terrain and transportation conditions. Both contractors are using the same general procedure, and employ about the same equipment (listed in accompanying table). Trackson side-boom cranes on Caterpillar tractors predominate for pipe handling. All pipe is beveled at the ends, but because of the numerous bends required, little double-ending of pipe lengths is done, at least in the mountain areas. Trench cutting is by ditching machine where possible, but most of it is by backhoe. Necessary trench drilling is done with wagon drills swung from tractor sidebooms, and blasted trenches are usually excavated by clamshells.

### Welding Details

When the pipe is strung and bent, ready for tying together, the first step is to apply a stringer bead with Lincoln No. 5 welding rod. The connected pipe, in lengths from 3,500 to 5,000 ft, is then raised up on blocking or skids. Internal expanders are specified for the first stringer bead welding to assure correct alignment. Next, another crew fills in the bevel fillets with a hot pass of Lincoln No. 85 rod. Then the welding gang caps the joints with Lincoln No. 85 rod. Lincoln 300-amp arc welders are used throughout. From 35 to 40% of welds are X-ray tested. First and second improper welds revealed by the X-ray result in warnings to the welders; a third failure means dismissal.

Welding schools were set up at



Edmonton and Vancouver to test Canadian welders. Only about 5% of applicants were acceptable, which meant many welders had to be brought in from the United States.

The connected pipe is next cleaned and primed with Koppers 70-B prime. Then it is double-wrapped with one wrapping of Fiberglas and an outer coating of asbestos felt, saturated with Koppers 70-B enamel, winter grade. Close behind final wrapping follows a holiday machine to detect any weakness in the covering.

#### Lowering in by Teamwork

Next step is lowering in and tying in the long sections. Side-boom tractors with belt slings lift the pipe off skids and lower it into the trench by leapfrogging each other. At point of joining long sections together it is necessary to cut one section to exactly fit the other. This is done by careful measuring, then cutting the pipe with a portable cutting and beveling machine. After the sections are welded together the joint is carefully wrapped by hand. Trenches are pumped clear of water, if possible, before the pipe is lowered in. In some swamp areas, where the trenches cannot be unwatered, the pipe is often assembled and pushed ahead from solid ground.

Backfilling is by bulldozers and long-boom backfill drag scrapers on tractors. Where backfill material is rock, a metal shield, pulled along by cable from an advance tractor, protects the wrapping from damage as the first layer of backfill is pushed into the trench.

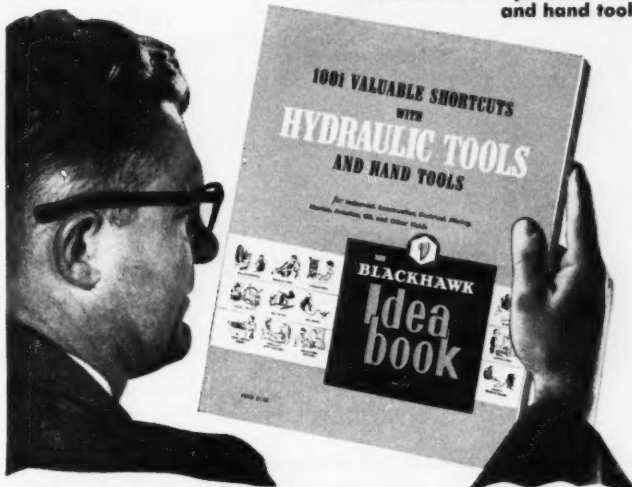
River crossings will be made this winter during low-flow periods. Some will be excavated and the pipe laid through the ice. The biggest crossing, under the Fraser at Port Mann, near Vancouver, is being done under separate contract.

Canadian Bechtel, Ltd. has done a fine job in public relations, assigning A. J. Dalrymple to the task of informing the people and press of Alberta and British Columbia as to the economic value of the pipeline to their communities. Dal has traveled back and forth over the line time and time again, making speeches, showing pictures, and answering questions. The result is unmistakable better relations between the communities, business men, the pipeline company and their contractors. This all helped the right-of-way acquisition, too.

Organizations and Personnel on next page

# Announcing ... the great new 64-page BLACKHAWK IDEA BOOK

1001 shortcuts to save you time ... money ...  
materials with hydraulic tools  
and hand tools



Here's the greatest collection of ideas ever compiled on new uses for hydraulic tools and hand tools. The IDEA BOOK gives you the benefit of ideas developed and applied by hundreds of users of Blackhawk equipment. Most important, the IDEA BOOK will stimulate you to create *your own* ideas ... will show how Blackhawk equipment can solve special problems for you! So — send for it! You'll want to read every page

— you may find a "gold mine" in any one picture.

You see, many industrial and construction methods are today being revolutionized by Blackhawk equipment. Savings in time, money and materials are often spectacular. Safety and ease are being introduced to many jobs formerly downright dangerous and back-breaking. Yet Blackhawk equipment itself is surprisingly low in cost!

IDEA BOOK contains all the facts on how you can

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## NAVAL YARD SEWAGE PROJECT...



Michigan Model C-16, 1/2 yd. clamshell, equipped with 30-inch crawler pads.

Construction of 4,500 feet of sewage lines to connect the Norfolk Naval Yard system with that of Portsmouth, Virginia, is being handled by A. G. Pinkston Company, Portsmouth. Trenches are 6 feet wide, 6 feet to 16 feet deep and carry 4-inch to 30-inch main and lateral pipe.

Three MICHIGAN Crawler Excavators and a MICHIGAN Truck Crane are working on the job. Their speed and handling ease are major factors in keeping the job moving on schedule. "With the MICHIGAN air controlled clutches we gain one to two bucket loads over every ten handled by other shovels. This adds 10%-15% to our daily production," states A. G. Pinkston, Jr.

Take a tip from contractors who know! When you need an excavator-crane... investigate MICHIGAN.

### **MICHIGAN** POWER SHOVEL COMPANY

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## TRANS-MOUNTAIN PIPELINE...

Continued

### Organizations and Personnel

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Shell Oil Co. of Canada Ltd.  
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J. H. Burroughs, general superintendent pipeline  
Charles L. Crow, superintendent materials  
C. L. Adamson, superintendent pump stations  
Ralph Hamilton, engineering manager  
Harry Waste, project engr. field.  
B. D. Bohna, project engr. office  
J. Don Creveling, lands manager  
William C. Ralston, administrative manager  
Art Rigby, supervisor  
Bob Southerland, supervisor  
B. W. Moore, supervisor  
M. A. Coe, supervisor  
A. J. Dalrymple, public relations

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#### CAMPBELL-BENNETT, LTD., Vancouver (sub for Comstock Midwestern clearing and grading)

#### GRIFFIN & GRIFFIN, Cochrane, Alberta (sub for Mannix clearing and grading)

#### MISSOURI VALLEY CANADIAN, Vancouver (contractor for Port Mann crossing of Fraser River)

#### LOCKWOOD, KESSLER & BARTLETT, LTD., (ground surveys)

#### PHOTOGRAPHIC SURVEY CORP. LTD., Toronto (aerial surveys)

#### HORTON STEEL WORKS, Toronto (Kamloops and Burnaby tanks)

#### TORONTO IRON WORKS (Edmonton tanks)

#### MANNIX, LTD. (pump stations)



How to cut a time schedule

**25%**

The Skousen-Hise Contr. Co. of Albuquerque is cutting a new four-lane highway for U. S. 66 through New Mexico's Tijeras Canyon. So far they've also cut their time schedule for the job a full 25%.

One reason for this amazing record is the "Caterpillar" equipment on the job: a D13000 Diesel Engine in this Northwest Shovel, six D8 Tractors, a D7 and a D6 Tractor and two No. 12 Motor Graders.

The D13000 Diesel Engine in this shovel has been going almost constantly since 1938. On this highway job it's helping to move a million yards of granite rock—the kind of rough duty it was designed and built to handle. For this Diesel was built with care: its "wet" type cylinder liners, for instance, are

Hi-Electro hardened, then chemically treated to assure smooth break-in with the rings. And like all 12 sizes of "Cat" Diesel Engines, it runs on low-cost, non-premium fuel without danger of fouling.

"Caterpillar" Engines are available in machines built by the leading equipment manufacturers. So take a tip from the experience of Skousen-Hise: cut your own work schedules by specifying "Caterpillar" power in the equipment you buy.

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TRACTORS • MOTOR GRADERS  
EARTHMOVING EQUIPMENT**



Wide World Photo

Coming up to meet end-section ribs is 240-ton timber form as . . .

## Venezuela Rushes Superhighway

THREE BRIDGES, two tunnels and numerous cuts and fills, costing a whopping \$70,000,000 for a total highway mileage of only 10½ mi, are making interesting construction history in Venezuela.

Under construction is the "Autopista," a four-lane superhighway that will cut the driving time between the important seaport of La Guaira and the capital Caracas from one hour to 15 min. The present road is a twisting 19-mi route over the intervening 6,000-ft foothills of the Andes Mountains. The road carries some 6,000 vehicles daily and has more than 300 curves.

Some bold engineering here calls for unusual construction methods. The most unusual is the construction of a prestressed concrete-arch bridge spanning 498 ft (total length with approaches is 1,013 ft), rising 220 ft above the canyon

floor and with a deck 70 ft wide to carry six traffic lanes, a 4-ft center mall and a 28-in. sidewalk on each side.

The three arch ribs hinge on hollow abutment piers 137 ft high, 80 ft wide and 20 ft thick which also carry the approaches. This arch was cast on forms suspended by cables from the piers. Precast and prestressed concrete cross-beams and deck-beams are literally tied together with prestressing wire.

Following construction of the piers, the first formwork for the arch was erected, starting from each foot hinge. It was a platform carried on 3x10-in. timbers on 11-in. centers and 30 ft long. Each platform was supported by two sets of cables of 48 0.2-in. wires anchored in the piers. The outer ends of the cables were secured in concrete poured around a trans-

verse steel beam supporting the platform.

The bottoms of the arch ribs were poured first and then served to assist the timber platform in supporting sides and tops of ribs being cast in turn. The falsework platform for the second section of rib duplicated the first one and was placed and supported similarly.

The third form section for each rib was supported on a timber truss about 50 ft long. It was assembled in the valley underneath and hoisted into position abutting the second arch section, where it was supported by cables made up of 64 wires tied to the piers and arch sections already placed. The fourth rib section was identical to the third and was handled the same way.

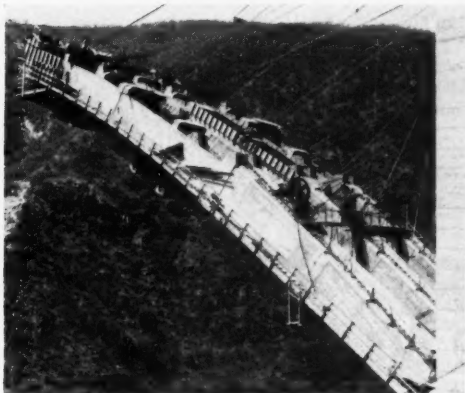
As cast, rib sections abutted only at the bottom. A small gap was left





ARCH RIBS now are self-supporting and timber form has been lowered to valley below. Approaches at both ends were constructed

first, became bases for horizontal gantries that handled precast beams. Casting yards are located at each end of bridge.



POURING OF ARCH RIBS began at the bottoms of piers, supported by platform and truss-type forms suspended from cables. Center form was hoisted by winches on these rib sections.



WIRE MAZE in rib sections is tensioned until structure is literally tied together with prestressing wire. Hand-operated hydraulic jack applies stretch, Freyssinet cones secure the ends.

at top and sides to permit a limited "hinge" action when ribs were brought into final alignment. Hoisting of components and assemblies was done with a 5½-ton cableway across the valley that serves the entire job. Where formwork assemblies were too heavy for the cableway, hand winches were brought into play to give the extra assist needed.

The most interesting part of the whole job was the placing of the formwork for the large center section of the arch. Instead of working on only one rib at a time, this

single assembly accommodated the formwork for the three arch ribs. It was assembled on the ground into a 240-ton timber unit, 265 ft long, and was supported for hoisting on the rib end sections jutting out from the piers.

For hoisting, two 11-ton electric winches were installed on the second section of each outer rib. A hand winch on each center rib was used for compensation. Lifting was through ⅝-in. wire rope, 18 strands to each side.

After 8 hr of careful hoisting, the huge form was eased into posi-

tion abutting the bottoms of each fourth rib section placed previously. Concreting, employing the cableway and a 1½-yd bucket, was done symmetrically to forestall uneven loading.

Following casting of bottom and sides of the center-span ribs, special hydraulic jacks were placed at the crown to regulate bending moments during the remainder of construction. In use were 15 360-ton jacks and 33 82-ton jacks, bearing against special crown blocks. About this time forms were

(Continued on page 80)

# So DIFFERENT...

## **Power Plus Anti-Rust Protection** **at No Extra Cost**

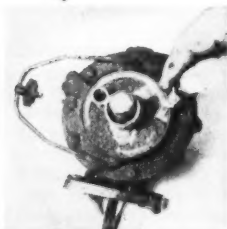
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Sinclair Gasoline with RD-119 *prevents* rust and corrosion—can save you costly repairs to carburetors and fuel pumps. Regular use of Sinclair Diesel Fuel containing RD-119 eliminates the problem of rust-clogged injectors.

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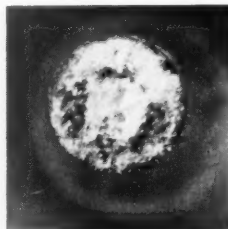
See the Difference  
that RD-119 can make  
in your equipment...



Here is a fuel pump, ruined by rust and corrosion taken from a 3-year-old car operated on ordinary gasolines.



Fuel pump cover, removed from 3-year-old car after 25,339 miles, shows no sign of rust or corrosion. Operated on Sinclair Anti-Rust Gasoline with RD-119.



Carburetor jet plugged with corrosion, taken from a 2-year-old car after 12,000 miles of operation on ordinary gasolines.



Carburetor jet on a 3-year-old car shows no rust or corrosion after 35,921 miles of operation using Sinclair Anti-Rust Gasoline with RD-119.

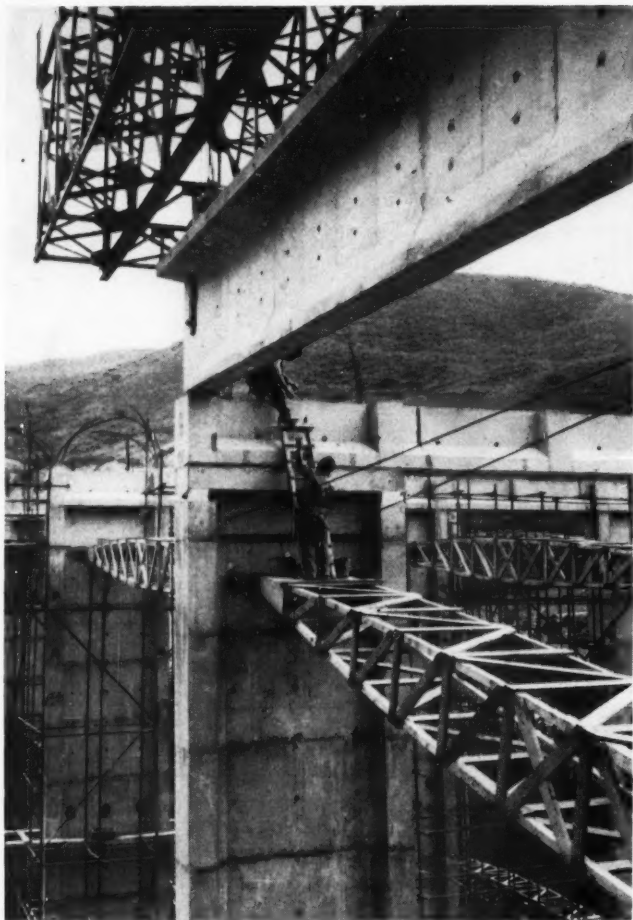
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Representative today  
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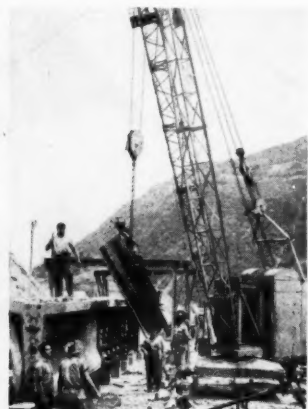
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600 Fifth Ave., New York 20, N. Y.



PRECAST, PRESTRESSED deck beam being placed atop one spandrel column by the 60-ft cantilevering gantry crane. Timber bracing between spandrel columns maintains alignment until all beams are placed and tied together with tensioning cables.



GROUT IS FORCED into joints between deck slabs and beams. Precast slabs are 5 ft 3 in. long, 3 ft wide and 7 in. thick.



STEEL FORMS designed for 100 re-uses are employed in the beam-casting yard. Light crane on rails handles materials and forms.



CASTING YARDS on the site keep the job on the move. Beams weigh 22 to 25 tons and are brought to the bridge on a car running on a one-meter gage rail line. The horizontal gantry then picks up the beam and places it on the structure. (Continued on p. 82)



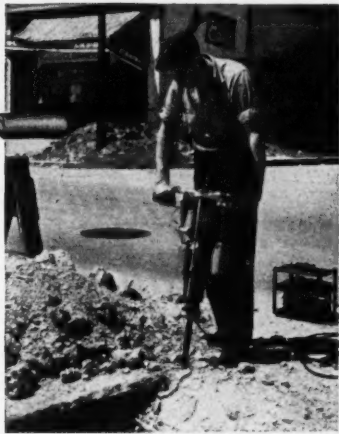
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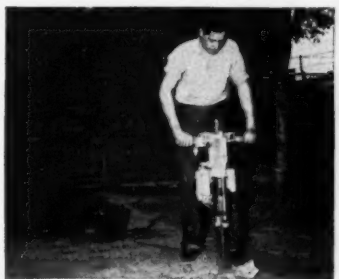
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**ASPHALT CUTTING**—An easy, fast job with a Barco Hammer.



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## ON CONSTRUCTION JOBS

◆ Fairfield's Lightweight Troughed Belt Conveyor saves you minutes here, hours there—adding up to days and weeks of valuable time over the period of a year. Rush it from one job to another. Once in position it slashes loading and unloading time for all types of aggregates—sand, lime, cinders, and gravel. Review the facts yourself—the coupon below will bring you complete information.



High capacity, low cost Model 666 for all types of material handling in construction and yard work.



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**CONCRETE TUNNEL LINING** is applied from lining jumbo rolling on rails on each side. Transit-mix trucks bring in the concrete to supply a Pumpcrete machine that does the placing. Morrison-Knudsen electricians are busy in the foreground.

stripped and lowered to the ground.

Pouring of spandrel columns followed casting of the arch ribs and then were placed the precast cross-beams, deck-beams and slabs for the deck. Deck-beams were

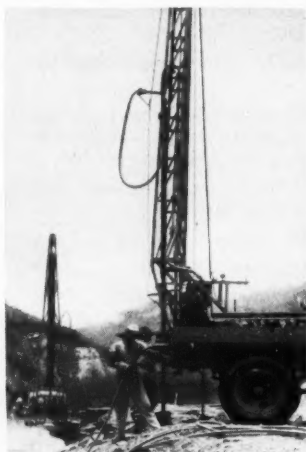
placed by a horizontal gantry, as were the beams and slabs on the approaches. As sections of assemblies were completed, prestressing wires were tensioned and secured with Freyssinet cones.

Two similar, but smaller, bridges are yet to be built on the Autopista. Designer of all three is the French engineer, Eugene Freyssinet, whose prestressing method is employed.

The contractor is Empresas Campeon Bernard de Venezuela, project manager and chief engineer, Robert Shama. Assistant manager is D. Martin; superintendents are J. Davaine and J. Paroonagian. J. Dulau is in charge of arch construction; P. Loup supervises prefabrication of deck beams and slabs; K. Pedersen is in charge of general work, erection and assembly; and A. Gallico supervises all prestressing.

The two highway tunnels are being constructed by the Venezuela affiliate of the Morrison-Knudsen Co., C. Dugan Graham project manager. Each consists of two parallel bores 33 ft wide and 23 ft 8 in. high. One tunnel is 1,500 ft long and the second is 5,820 ft

(Continued on page 85)



**BLAST-HOLE DRILLING** precedes extensive blasting necessary to cut down steep ridges and help fill the deep gorges.

# P&H

# has done it again!



## MITI-MITE



Converts easily for all attachments. As a Crane 7-ton lifting capacity.

This time P&H scooped the industry with a machine that will change your ideas about small truck cranes.

It's a tremendous innovation — 100% automotive in concept and construction. You'd hardly believe a machine that does so many things could be so simple, so compact, so easy to operate, so powerful. What backbone! Everything is designed around a rugged power box built of inch-thick steel plate — all welded to preserve perfect alignment. Like a tank transmission, you can stake your life on it!

**RIDES ON ANY SUITABLE TRUCK** — Mounting? New, used, or rebuilt, your P&H dealer will do it — or do it yourself . . . it's easy.

**CONVERTS EASILY ON THE JOB** — Whatever you require — shovel, crane, dragline, trench hoe, clam-shell or magnet, you have it with simplified attachments you can change right in the field. And with any one of them, you'll have the famous P&H stability that gives you greater work capacity. Your P&H dealer has all the facts.

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# Presenting the New Cleaver-Brooks High-Temperature Oil Booster

**"THE SENSATION OF THE EQUIPMENT SHOWS"**



**Heats faster, at lower cost**



**Heats to higher temperatures**

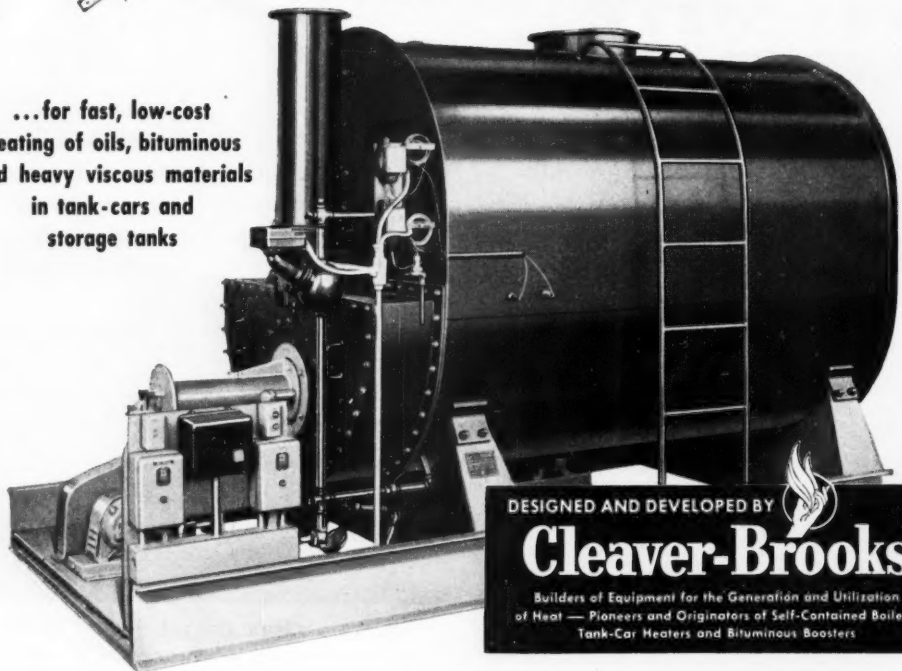


**Uses high temperature oil as  
the heat transfer medium**



**Engineered for long life — Strong and rugged**

**...for fast, low-cost  
heating of oils, bituminous  
and heavy viscous materials  
in tank-cars and  
storage tanks**



DESIGNED AND DEVELOPED BY

**Cleaver-Brooks**

Builders of Equipment for the Generation and Utilization  
of Heat — Planners and Originators of Self-Contained Boilers,  
Tank-Car Heaters and Bituminous Boosters

USING a specially selected, high temperature oil as the heat transfer medium (no water or steam needed and operating at atmospheric pressure) the new Cleaver-Brooks High Temperature Oil Booster provides many time and money-saving advantages: — high-speed performance — no water, steam, or pressure problems — heats to higher temperatures — positive heat circulation — constant re-use of high-temperature oil medium — quicker shut-down and simpler operation — avoids weather problems — operates at lower costs and with reduced maintenance.

The High Temperature Oil Booster is a fully automatic, rugged, heavy duty heating unit, operating on the principle of a closed heating system. Unit is fired by pressure atomizing type oil burner. Self-contained — including pump, valves, piping, temperature and low level controls, electric motors and controls; complete unit mounted on a heavy channel iron base, ready for service hook-up. Available in two sizes of stationary electric-driven units — write for bulletin and complete information. CLEAVER-BROOKS COMPANY, Dept. L-398, E. Keefe Avenue, Milwaukee 12, Wisconsin.





IT'S TIGHT FORMATION for these Caterpillar scrapers and D8 crawlers dumping on the fill. Mountain road snakes away in the background. Many immigrants work on the Autopista.



STRAIGHT AND LEVEL is the new route after dynamite, bulldozers and scrapers have topped the hills and filled the valleys. Scrapers go zipping along to another job site.

long. Their portals are separated by a mountain valley.

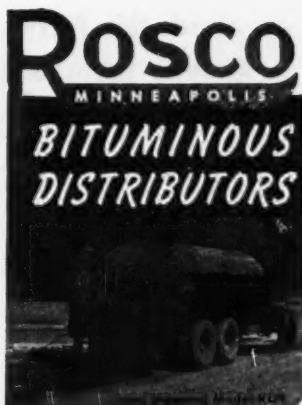
M-K de Venezuela has run a highly productive tunneling operation following the establishment of portals—a difficult job of licking earth slippage, due to heavy rains. Some 800 Venezuelan workers have been kept busy on three 8-hr shifts six days a week. Production over a 14-month period averaged 23.7 ft of progress daily, in spite of unstable rock and the necessity for heavy steel tunnel support ribs to hold the overburden until the concrete lining can be placed.

Lining of the shorter tunnel has been completed. In the large tunnel, concreting is going forward at the rate of 33 lin ft per day from one lining jumbo which is serviced by a Pumpcrete machine kept sup-

plied by the transit-mix trucks.

Earthmoving and grading operations for the remainder of the super-road are being handled by local contractors using U. S.-built tractors, earthmovers, trucks and drill rigs. Gaps in the rugged hills around 150 ft deep are being filled and cuts up to 300 ft have been made to eliminate steep inclines and treacherous turns.

Construction began 6 yr ago when engineers started on 36 mi of secondary and access roads, slicing off some mountain tops in the process. The entire Autopista project, under the government's ministry of public works, is on a pay-as-you-go basis, made possible by the income from Venezuela's extensive oil and mineral resources now being exploited.



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**ROSCO MAINTENANCE UNIT**

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Rear Mounted Model RRE

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Model No. 7014 with "A" standard. "U" type also available. \$575\* complete with tripod, case and field equipment.

**Yet this improved White instrument costs you less than any other quality engineers' transit**

NOT only does David White calibrate the graduations on its Engineers' Transit within less than one second. But that accuracy is yours for years and years! Reason: a new Swiss dividing engine of the latest design cuts the graduations into *solid silver*.

What's more, White's unexcelled coated optics provide a clear, sharp image — without halation even under adverse conditions at long distances. Other added refinements that cost you less include the totally enclosed leveling screws, water-proof compass box and hand-fitted, anti-friction, virgin hard bell metal centers.

See your dealer for full information on the complete David White line of Transits, Universal Level-Transits, Levels, Theodolites and engineering supplies. Or write for new Bulletin 1052 to DAVID WHITE COMPANY, 343 W. Court Street, Milwaukee 12, Wisconsin.



*We offer the most expert REPAIR SERVICE on all makes, all types of instruments.*

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*\*Price subject to change without notice.*



**Tractor jackknifes scraper as it backs on trailer...**



**Scraper trails behind to job site, showing...**

## How Goosenecks Simplify Hauling

TWO YEARS AGO we first heard about an ingenious contractor who had figured out a way to haul his rubber-mounted tractor-scraper units over the road and yet stay within the legal maximum load limits set up by state highway departments. He merely ran the tractor unit up on the rear of a low boy trailer, using timber ramps, and left the rear scraper wheels to trail on the road.

The idea quickly caught on and CM&E illustrated how it was done with a crawler-powered scraper in the April 1951 issue (p. 97). Contractors were cautioned to remember two things: Loosen bearings and increase air pressure on the rear scraper wheels out on the road.

Meanwhile contractors have become interested in many kinds of folding gooseneck trailers which need no blocking and cribbing.

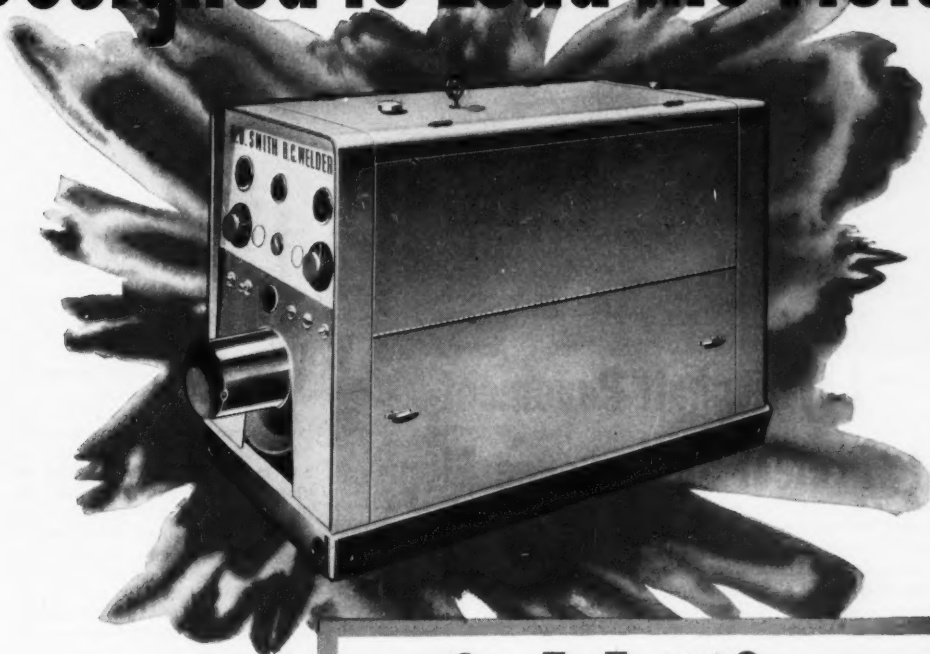
In order to haul tractor-scraper units over the road, contractors complained, they'd have to revert back to blocking and timbers to drive a tractor unit aboard the rear of a trailer while the scraper is

attached. Not so, said Martin Machine Co. of Kewanee, Ill., and here are their pictures to prove how easily it's done with their rig.

The folding gooseneck is lowered to the ground and its truck unit pulled out of the way. A tractor-scraper unit—in this case a "Cat" DW-21 tractor and No. 21 scraper—is drawn up alongside and parallel, with the tractor unit slightly ahead of the collapsed trailer. The tractor then is pivoted and backed up on the sloping bed, jackknifing the scraper unit behind it, until the drive wheels strike pre-placed rear chocks. Front chocks are quickly fastened, rear-wheel scraper bearings loosened, the gooseneck raised and connected to the highway tractor—and the rig is on its way.

Upon arrival at the new job site the process is reversed, with the truck driver maneuvering until he has jackknifed the scraper unit again. He then lowers the trailer bed once more and the earthmover pulls off, ready for work.

# Designed to Lead the Field



## the New A.O. Smith **Field King**

**GAS ENGINE-DRIVEN DC FIELD WELDER**

**Here it is!** The most advanced of all engine-driven welding machines now available!

**It's the A. O. Smith "Field King,"** built to thrive on rugged jobs in the field . . . to endure the rough handling of transport . . . to withstand any weather . . . and to turn out better welds, faster and smoother!

**Weld with new speed and ease!** Produce cleaner welds and more of them per

man-hour! You'll do it with the "Field King." Its fast-striking, forceful arc is easy to handle, always under control, not given to arc blow. You'll put down a uniform deposit of weld metal you'll be proud of.

**Electric dual control!** The "Field King" has series and shunt field adjustment for current control which permits constant engine speed at rated r.p.m. during welding periods. This accounts for the fast striking arc and superior welding

ability of the A. O. Smith "Field King."

**"Combat-tested, time-tested"** engine of 20% greater horsepower than conventional machines; exclusive, patented electric idling control; a more efficient machine that has less bulk than older types . . . these, plus many other features, make the "Field King" the field welder for you!

**For complete information, mail the coupon:**

**A.O. Smith**  
WELDING PRODUCTS

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Made by welders . . . for welders

**Hook up**  
TO A. O. SMITH EXPERIENCE



A. O. Smith Corporation  
Dept. CM-1032, Welding Products Division  
Milwaukee 1, Wisconsin  
Rush complete information on your  
"Field King"

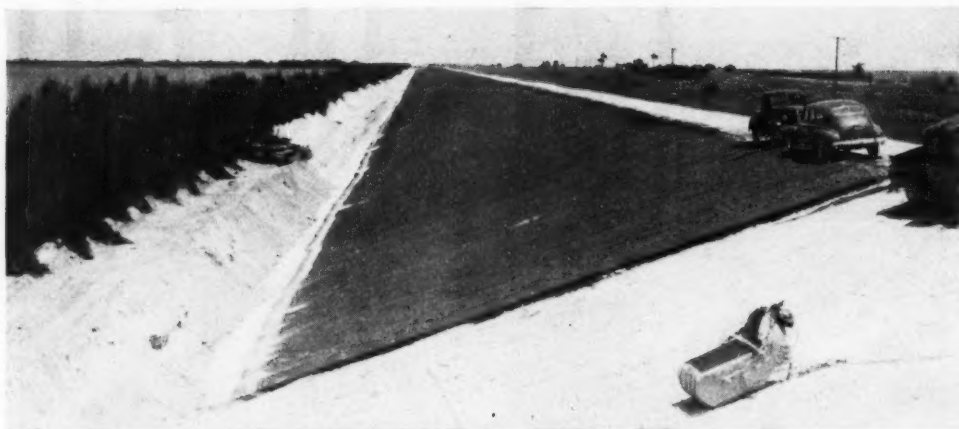
☐ 200-Amp. ☐ 300-Amp. Welder.

Name

Firm

Address

City  State



FINISHED PAVEMENT on 1 to 3 slope of Florida levee is designed to protect levee against wave action during hurricanes. Also helped

to create higher bank for possible future raising of water level in lake. Dozer is backfilling at toe of slope.

## Lay Asphalt Pavement to Protect Steep Levee Slope

By E. DALTON WHITE

AN EXTRA 4 FT in height was obtained recently on two sections of the levee around Lake Okeechobee in Southern Florida at little extra cost when a 6-in. asphalt pavement was placed on the lakeside slope.

The additional height came about

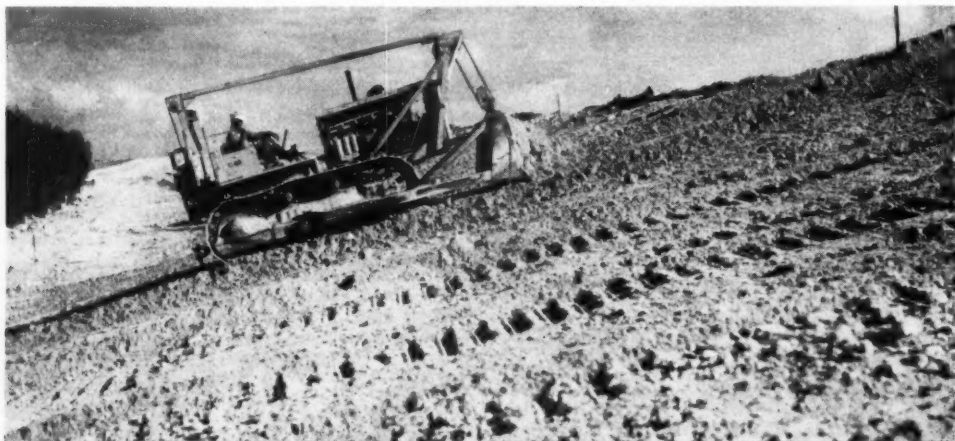
because asphalt pavement on the levee incline could be placed on a 1 on 3 slope and the material, obtained in changing the 1 on 6 slope, was used to add a new crown.

In doing the work, Smith Engineering and Construction Co. of Pensacola made some ingenious

applications of available equipment to speed operations.

The 83.5 mi of levees around the lake were constructed between 1932 and 1937. There are 15.7 mi on the north shore and 67.8 mi along the south and east shores, extending northward to St. Lucie Canal. Material had been dredged from the lake and was mostly sandy marl, shell, limerock and some free sand—except for 16 mi of east shore which was predominantly muck. A thick blanket of rock and marl had been laid on the lakeside slope and on the crown.

Wave action during hurricanes caused considerable damage to the relatively flat front slopes. Some



PUSHING MATERIAL UPSLOPE is Caterpillar crawler as lakeside slope is changed from 1 on 6 to 1 on 3, which also raises crown by

4 ft. Excess material at bottom was stockpiled lakeward by dragline to make deeper trench, get asphalt below water level.





**BARBER-GREENE PAVER** moves along toe of slope to start asphalt placement. Mix truck gets an assist up and down slope with cable on rear-mounted winch on crawler tractor on the crown of the levee. Paver was not used over soft sand.

repairs had been made, but two sections—4.8 mi on the south shore and 1.6 mi on the east shore—were rehabilitated only recently.

Asphalt pavement was selected for the slope because it is believed that such a face will prevent hurricane wave-action damage and that future maintenance cost will be less. Also the byproduct, 4 ft of extra height, was deemed desirable

because the lake's water level is likely to be raised in the future to provide additional irrigation.

The contractor first cleared vegetation from the levee and then scarified the surface. In order to get the asphalt pavement below water level, a trench was dug at the point of junction of the two different slopes.

Material from the upper portion

was pushed upward by bulldozer to the crown. A  $\frac{3}{4}$ -yd dragline was used to excavate the lower material which was stockpiled lakeward, near and between trees lining the lake shore. Part of this material was hauled by Euclids to the asphalt-mixing plant. The backfill later was sluiced into the trench.

Equipment at the mixing plant

(Continued on page 92)



**SPREADER BOX** was brought into service on sections of the slope where paver could not be used. It was hauled up and down by a

Caterpillar D-8 tractor with Hyster winch. Trucks could not turn around on crown, were headed correctly by tractor.



# Widest Range



New Le Roi 125 cfm Airmaster air work cutting costs. The two model 52 Le Roi-CLEVELAND breakers get plenty of air, break concrete faster, and reduce the time spent on the job. You save.

## THE INDUSTRY'S WIDEST RANGE OF CAPACITIES LETS



**New 85 cfm** — Perfect as a "one-gun" compressor. Operates heavy breaker and other tools that are too much for 60 cfm units. Here we see one operating the handy 17½-lb. Le Roi-CLEVELAND H-22 sinker.



**New 125 cfm** — Both gas and diesel models. Ideal for running two heavy breakers, such as these Le Roi-CLEVELAND Model 52's, from one machine. Priced the same as the old 105-cfm gas and diesel units. A low-priced liquid-cooled 105 is still available to meet your needs.



**New 185 cfm** — Both gas and diesel models. Offers more capacity than a 160-cfm unit, but priced the same as the old 160. Just another example that proves Le Roi gives you more for your money.

# of portable compressors ever offered gives you more for your air-equipment dollars

## More sizes to choose from—in the bigger-than-ever LeRoi line

9 SIZES — 15 MODELS

60 cfm gas	210 cfm gas
New! 85 cfm gas	New! 250 cfm diesel
105 cfm gas	New! 365 cfm gas
105 cfm Tractair	New! 365 cfm diesel
New! 125 cfm gas	600 cfm diesel (IHC)
New! 125 cfm diesel	600 cfm diesel (Murphy)
New! 185 cfm gas	600 cfm diesel (Cat)
New! 185 cfm diesel	

Compressors  
Rock Drills  
Tractair  
Engines...



**LE ROI COMPANY**

MILWAUKEE 14, WIS.

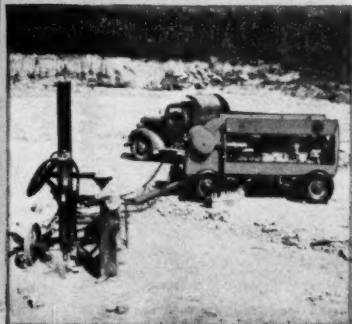
Plants: MILWAUKEE • CLEVELAND • GREENWICH, OHIO

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Manchester — NEW JERSEY: Cranford, Kingston — NEW MEXICO: Albuquerque — NEW YORK: Albany, Binghamton, Buffalo, Long Island City, Newburgh, Rochester, Southeries, Syracuse, Whitesboro, Woodside (L.I.) — NORTH CAROLINA: Charlotte — OHIO: Cincinnati, Cleveland, Columbus, Dayton, Toledo — OKLAHOMA: Oklahoma City, Tulsa — OREGON: Portland — PENNSYLVANIA: Bethlehem, Harrisburg, Philadelphia, Pittsburgh — RHODE ISLAND: Providence — SOUTH CAROLINA: Columbia — SOUTH DAKOTA: Rapid City, Sioux Falls — TENNESSEE: Chattanooga, Knoxville, Memphis, Nashville — TEXAS: Dallas, El Paso, Houston, Lubbock, San Antonio — UTAH: Salt Lake City — VIRGINIA: Richmond, Roanoke — WASHINGTON: Seattle, Spokane — WEST VIRGINIA: Clarksburg, South Charleston — WISCONSIN: Milwaukee — WYOMING: Casper

## YOU AIR-EQUIP YOUR JOBS FOR GREATEST PROFIT!



**New 350 cfm** — Diesel-powered. Operates two light-weight wagon drills, like the Le Roi-CLEVELAND DR-34, or one heavy wagon drill, like the Le Roi-CLEVELAND DR-30. Price is same as former 210 diesel.



**New 365 cfm** — Gas and diesel units replace 315-cfm models. Extra capacity handles many applications that formerly required a 500. Here it runs a Le Roi-CLEVELAND DR-30 wagon drill for deep holes.



**600 cfm** — These heavy-duty diesel units have plenty of capacity to help you get extra footage from your wagon drills and hand-held tools. The 600 shown here operates two Le Roi-CLEVELAND DR-30 deep-hole wagon drills with plenty of air to spare for other tools.

## COMMENT

*from the*  
**BUTLER ENGINEER**

### **3 Butler Plants Save U. S. President's Salary**

They don't use timber today to shore-up mine tunnels — ("drifts" to the initiated.) Concrete linings are what the well-dressed mines will wear; concrete mixed by Butler Plants, of course.

Here's the story: Cleveland Cliffs Mine Co. is rehabilitating old copper and iron mines in the north Michigan peninsula. It's an amazing operation. Beautiful grounds landscaped like Aladdin's garden. Highly modern housing developments and fine, well-planned streets and highways.

But most modern of all are the concrete lined tunn—well, drifts, some of which are deep enough to make Satan move his feet. Concrete means safety and economy. Three Butler Ready Mixed Plants do the pouring. They save a dollar a barrel over bag cement. That's enough to pay the salary and tax-free emoluments of the President of the U.S.A. I'm sure this gives H.S.T. a feeling of real security until January.

There's a new bridge under construction across the Hudson River north of the George Washington span. It carries the Thru-way from the Great West to the Stork Club and the Copacabana. Rated as one of the great bridges of the world—traffic-wise and in length, it owes its sound footing and the span of its future to a Butler Mixing Plant which, floating on the Hudson, pours concrete for the foundations.

*Obviously Butler Plants are at work just about everywhere. I'm planning a Butler Plant to pour concrete runways for flying saucers, but don't say anything just yet. I have a reputation to protect.*

This year let's everybody vote.

*The Butler Engineer*

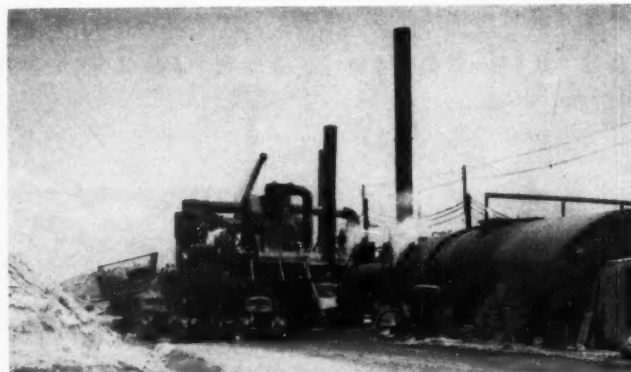
**BUTLER BIN COMPANY**  
WAUKESHA, WISCONSIN



INITIAL COMPACTION of the asphaltic pavement was accomplished by filling the front wheel of a Buffalo-Springfield roller with water and rolling it up and down the slope with the tractor winch. Immediate compaction protects asphalt against rain damage.



FINAL COMPACTION is applied with a Bros wobble-wheel roller loaded to 8 tons with scrap metal. Cable from Northwest crawler crane on crown hauls and directs roller. After two passes, an asphalt seal coat is applied to complete the job.



ASPHALT MIX PLANT was set up close to the job and some of the excavated material brought in for aggregate. Tractor-dozor in rear feeds the grizzly, and trucks take out the hot mix. Plant production was 200 tons per hr.

(Text continued on page 94)



**ANOTHER JOB MADE EASIER WITH ALEMITE "FRICTION FIGHTERS"**



Speeding,  
simplifying  
lubrication  
at the  
central shop!

**Headquarters for big rigs in trouble . . . that's the Central Shop!**

**Nowhere** else is smooth running operation so important, so necessary. Heavy equipment in for overhaul before the start of a new job. Big rigs pulled in for major repairs. Critical parts and assemblies being rushed out for emergency use in the field.

**Whatever** the job, thorough lubrication is a *must* on every work sheet . . . because minutes of care taken in the central shop can save hours in the field! Here—as throughout the construction industry—Alemite "Friction Fighters" play a vital part—saving time, saving work, saving money.

**Take**, for example, the high efficiency Alemite "Powerhouse" Barrel Pump shown above. It provides big volume, high pressure lubricant delivery direct from original 400-lb. drums. It can serve one outlet or be piped throughout the shop—enabling operators to move from machine to machine . . . flushing out dirt and old grease . . . lubricating the tightest, biggest bearings with an ease never before possible.

**Featuring** Pilot Operated Exhaust Valves—exclusive with Alemite—these "Powerhouse" Barrel Pumps offer extra power, extra output. Twelve models for all lubricants, air pressures and pump mountings.

**Check** these features. Check the other work-saving Alemite equipment shown here. Try them. Put them to work. They'll help you return more equipment to the line, faster, better protected than ever before!

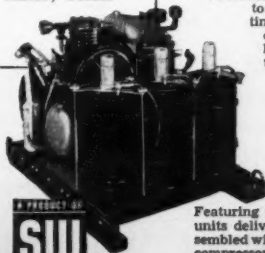


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Send today for free illustrated catalog describing this equipment. Write to Alemite, Dept. F-102, 1850 Diversy Parkway, Chicago 14, Ill.

**ALEMITE**

U.S. & S. 707 000



**Waste Free! Mess Free!**

**Alemite Transfer Pumps**

Cut man hours 63% for every 100 lbs. of lubricant transferred

Keep lubricants "refinery clean" from barrel to bearing

Efficient Alemite Transfer Pumps eliminate costly hand transferring. Eliminate all risk of lubricant contamination. Assure quick, waste free, mess free loading of bucket pumps and power guns. Shown is Alemite Model 7216-A. Handles oil or grease. Air operated pump empties a 100-lb. drum in less than a minute!

**Tops in Design . . . Quality . . . Service!**

**Genuine Alemite Fittings**

**Tough, case-hardened body**

Original equipment on a great majority of construction equipment! These fittings—Hydraulic and Button Head—are genuine Alemite fittings. Designed by Alemite, perfected by Alemite

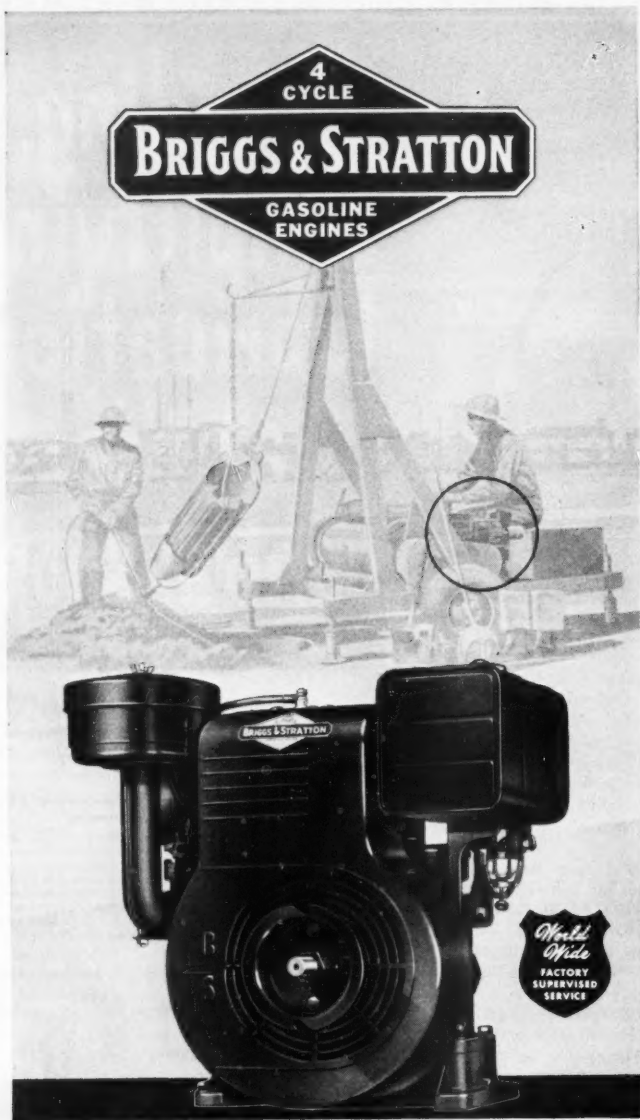
to give you a better fitting for every job. Insist on them. Standardize with them. Be sure you have plenty in stock. Be sure you specify the genuine Alemite.



**For Power Lubrication on the Job!**  
**Alemite Portable Service Stations**

Standard duty units for 100-lb. drums sectionalized to meet your needs

Featuring the famous Alemite "Atomic" Pump, these units deliver lubricant direct from 100-lb. drums. Assembled with pumps, up to 5 reels, delivery hose and air compressor. The matching steel bases can be fastened together with side rails . . . mounted on a small truck or trailer and quickly driven from place to place.



*Preferred power on sewer cleaning machines and related equipment — the world's most widely used single-cylinder gasoline engines on machines, tools, appliances used by municipalities, industry, construction, railroads, oil fields, and on equipment for farms and farm homes.*

**E**ARS ahead in design, performance, value — Briggs & Stratton single-cylinder, 4-cycle, air-cooled gasoline engines are *preferred* whenever dependable air-cooled power is required. Briggs & Stratton Corporation, Milwaukee 1, Wisconsin, U.S.A.

**In the automotive field Briggs & Stratton is the recognized leader and world's largest producer of locks, keys and related equipment.**

#### LEVEE PAVING . . . Cont. from p. 92

consisted of two 4x8 Hewitt-Robins vibrating screens with 2-in. openings; two Simplicity rotary drum single-shell driers, one 8x25 and the other 6x20; a 54-in. drum Woods continuous mixer; elevators and conveyor belts for aggregate movement; three 24,000-gal asphalt storage tanks; a steam boiler and several diesel electric units for power needs. The mixer was mounted on an elevated platform so that the asphalt mixture could be discharged directly into dump trucks.

A Neptune asphalt meter was used on the mixer, and the asphalt was RC-5 modified, to contain not more than 10% naphtha. Temperature was held at 200 deg F.

To forestall flashing in the pug-mill, three 6-in. stacks were installed in the drums of the Woods mixer to carry off the fumes and to reduce explosive effect. As an extra precaution, and what proved to be an absolute fire control, an ingenious valve arrangement was installed.

A quick-opening valve, installed at the front of the drum, was connected by a lever to the asphalt valve. Turning off the asphalt valve simultaneously opened the quick-opening valve, allowing steam to enter the drum.

The mill had a production schedule of 200 tons per hr.

#### Paver Begins Job

Initial paving on the slope of the south shore levee was accomplished by using a standard Barber-Greene asphalt paver, operating longitudinally along the slope. Mack trucks with 7½-ton dump bodies were used to haul the asphalt mix.

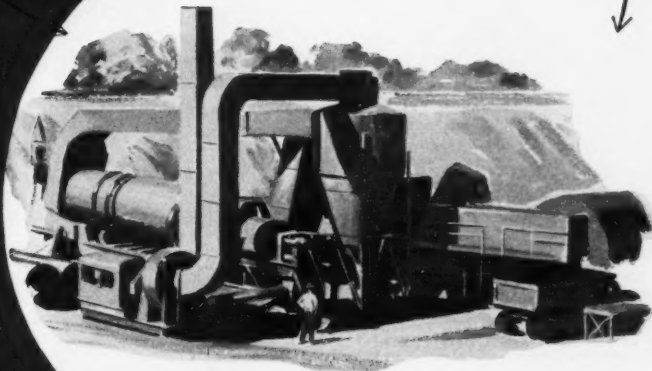
Trucks were lowered to the spreader by cable on a Hyster towing winch on a Caterpillar D-7. As trucks were pulled back up the slope, the tractor moved toward the asphalt plant so that the trucks were headed in that direction when they reached the crown. There was not enough room on the levee crown to turn the trucks.

The paver laid 10-ft strips, beginning at the toe of the slope and working progressively toward the crown. It is unusual to use a paver on a slope this steep, but satisfactory results were obtained. A slight modification of the spreader allowed the trucks to dump directly into the hopper.

Certain sections were sufficiently firm to use the Barber-Greene  
(Continued on page 97)

Protection by

# TOUSEY!



**T**OUSEY finishes protect this complicated asphalt plant against weather, corrosive fumes, rust, dirt and extremes in temperature. Such protection calls for a flexible paint that can be touched up, painted over, or patched without a long or tedious and one with a strong, durable surface. In the assurance that this quality and uniformity can be maintained at all times is another form of protection TOUSEY offers its many customers—protection of 40 years standing.

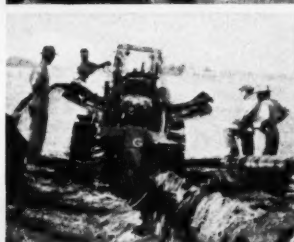


**DURACOTE for DURABILITY**

**THE TOUSEY VARNISH COMPANY**

**Cutting fleet costs on**

# **Operation Pipe Line**



**Experience of the hard-work-  
ing G. G. Griffis Construction  
Co. shows benefits you can  
get with . . .**

**STANOLUBE HD-M**

REG. U. S. PAT. OFF.

**Motor Oil**

**. . . on tougher fleet jobs.**

• The G. G. Griffis Construction Company, Tulsa, Oklahoma, has a far-flung reputation for tackling the tough jobs and getting them done on schedule. Sparking this organization is its president, Mr. G. G. Griffis who is shown above (left) with Mr. J. R. Welsby of Standard Oil. With 33 years pipe lining experience in all 48 states, Mr. Griffis knows how to get the most out of his equipment. He has this to say about his experience with STANOLUBE HD-M, Standard Oil's new and better heavy-duty motor oil:

"We push our engines hard on all jobs, and they must be able to take punishment. With your STANOLUBE HD-M we have not had to worry about any breakdowns due to faulty lubrication, and that's important when you've got schedules to meet. What's more, our engines have stayed cleaner and in better shape which has cut down overhaul bills."

Make the experience of Mr. G. G. Griffis your basis for trying STANOLUBE HD-M. This new and better additive-type lubricant, combining more effective detergent-dispersant action with greater oxidation stability, will keep deposits and wear at a minimum in all types of fleet engines under the toughest of operating conditions.

Your nearby Standard Oil Office and warehouse stocks STANOLUBE HD-M for fast local delivery. Here, too, is headquarters for your Standard lubrication specialist. Call him today. Or write: Standard Oil Company (Indiana), 910 South Michigan Ave., Chicago 80, Ill.

**STANDARD OIL COMPANY**  
**(Indiana)**





#### LEVEE PAVING . . . Cont. from p. 94

spreader traveling parallel to the crown. But when the subgrade became too sandy, the paver was moved to the crown for use and a spreader box brought into service on the slope. This was pulled up and down the slope by a Caterpillar D-8 with Hyster winch from the levee crown.

The pavement was first rolled with a smooth steel drum, the front wheel of a Buffalo-Springfield roller filled with water, pulled up and down vertically. Additional rolling was with a Bros 9-wheel wobble-wheel roller loaded to 8 tons with scrap iron. Two complete coverages produced the desired compaction.

Advantage of the steel roller was that it immediately compacted the asphalt mixture against damage by rain. And it permitted more uniform curing of the full depth of the layer, with increased uniformity in density of the pavement.

#### Asphalt Content

After compaction, a seal coat of RC-2 was applied at a rate of 0.30 gal per sq yd on the south shore levee and 0.45 gal per sq yd on the east shore levee. The seal was applied with an Etnyre distributor and a long hose with three nozzles on the end.

Asphalt content of the paving mix varied generally from 9 to 10%. Increasing the asphalt content to only 11% apparently made the mix too rich.

Tests were made every 3,000 sq yd of pavement and adjustments made in the amount of asphalt in the mix. Final compaction produced densities averaging 117 lb per cu ft, with no test less than 100 lb.

The job required about 300,000 cu yd of excavation and fill, and 296,000 sq yd of pavement. Average output on paving was 275 sq yd per hr. About 1,710,000 gal of asphalt were used, including 100,000 gal of seal coat. Paving was on two 10-hr shifts.

M. F. Gonzales was general superintendent for the contractor, and the work was under the supervision of A. R. Broadfoot, resident engineer for the Corps of Engineers, Jacksonville District.



## FASTER DRILLING at Lower Cost!

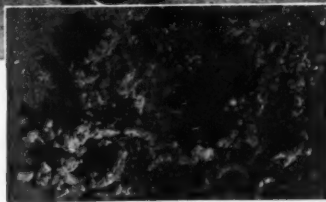
# Parmanco

MODEL 51 SELF-PROPELLED

## HYDRAULIC COAL AND CLAY DRILL

4 features for easy operation and top performance

- Hydraulic Feed
- Fluid Motor for Auger Rotation
- Finger-tip Controlled
- One-man Operation



**C**haracteristic of PARMANCO units, is the excellence of construction. The transmission is heavy duty truck type with four speeds forward and one speed reverse. The main frame is of all welded I-beam construction. The rear end is truck type with hydraulic brakes.

**NEW:** The Model 51 Drill is equipped with Automatic Drill-Cuttings Shield and Guide. Now blast holes are kept absolutely clean from cuttings. A dam is formed about blast hole, excluding casual surface water.

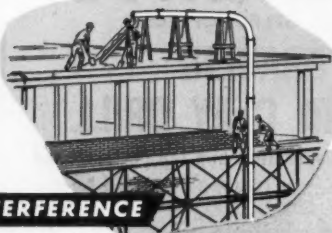
**T**his Coal and Clay Drill has been designed around a 40 h. p. engine. It will drill 2½ inch holes at a speed up to 7 feet per minute in No. 5 coal. Another Parmanco engineering feature is the ability of this drill to handle 4½ inch augers up to 25 feet in depth.

**PARIS MANUFACTURING CO., Paris, Ill.**

# Are you Being Penalized for **INTERFERENCE?**

You're not if you're using Rex® Pumpcrete® . . . concrete by pipe line . . . because with Pumpcrete *there is no interference*. Other crews can continue working *without interruption* while concrete is poured right beside them.

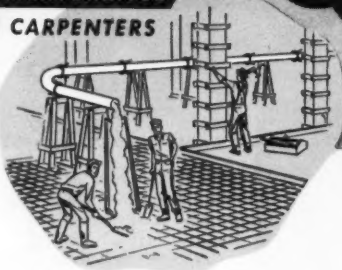
**NO INTERFERENCE  
WITH MASONS**



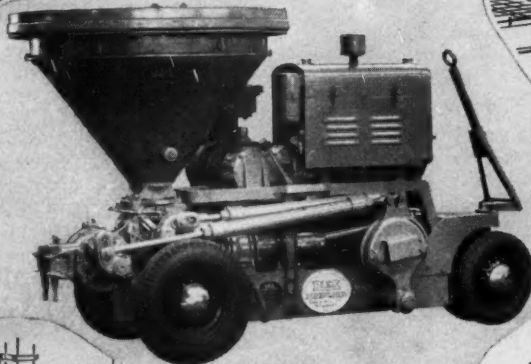
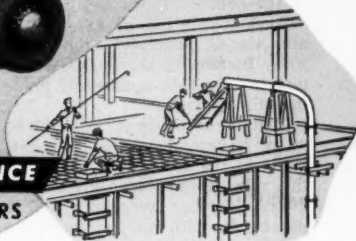
**NO INTERFERENCE  
WITH PLUMBERS**



**NO INTERFERENCE  
WITH CARPENTERS**



**NO INTERFERENCE  
WITH ROD BUSTERS**



So don't be penalized by the high cost of interference on *any job* . . . interference that means dollars out of your pocket. Investigate the savings of concrete by pipe line today. Get the details from your local Rex distributor, or write to Chain Belt Company, 4664 W. Greenfield Avenue, Milwaukee 1, Wisconsin.

- No delays waiting for various trades to finish up.
- No buggies, buggy runs or heavy equipment to move.
- No runaway storage problem.
- Move placing equipment from floor to floor in 15 minutes! Just extend the pipe.
- Eliminate trestling, scaffolding, towers and other expensive preparatory costs.
- No cleanup problems.
- Place all the concrete where you want it, when you want it, in a smooth, steady flow.



**CONSTRUCTION MACHINERY . . .**



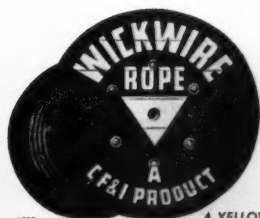
***in WIRE ROPE, too, extra strength  
demands the RIGHT KIND of muscle***

Towering as high as eight feet on his hind legs, the Kodiak or Alaskan Brown Bear ranks as the most powerful animal of North America. Rugged muscle development makes him the feared and deadly fighter that he is.

In wire rope, too, the right kind of muscle is essential to ward off the destructive effects of abrasion, corrosion, bending fatigue, load strain and shock stress.

That's why in Wickwire Rope we make sure—through complete quality control—that you always get the right construction and lay of the rope...the right grade of steel and size of wire for long-lasting resistance to the rigors of your particular service.

See your Wickwire Rope distributor or contact our nearest sales office.



A YELLOW TRIANGLE  
ON THE REEL IDENTIFIES  
WICKWIRE ROPE

THE COLORADO FUEL AND IRON CORPORATION—Abilene (Tex.) • Denver • Houston • Odessa (Tex.) • Phoenix • Salt Lake City • Tulsa  
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WICKWIRE SPENCER STEEL DIVISION—Boston • Buffalo • Chattanooga • Chicago • Detroit • Emlenton (Pa.) • New York • Philadelphia

**WICKWIRE ROPE**



PRODUCT OF WICKWIRE SPENCER STEEL DIVISION  
THE COLORADO FUEL AND IRON CORPORATION



**FOR SCRAPERS**

*In one 8-hour day this GM Diesel-powered Le Tourneau Tournapull can dig, haul and spread the amount of dirt removed in digging 8 or 10 average home basements.*

# THIS IS THE DIESEL

for any job from 32 H.P. up

Don't let the small size of this General Motors Diesel engine fool you. It's ready to take on any heavy-duty job from 32 H.P. up—and get more work done at lower cost than any other engine, Diesel and gasoline included.

In GM Diesel engines *every* piston downstroke is a power stroke—not every second downstroke as in most engines. This makes GM Diesels more compact, with more horsepower for their size. It gives them more “pep,” faster acceleration, smoother power.

The GM Diesel starts instantly on its own fuel. Simplified design makes maintenance easier. And rugged construction with interchangeable parts insures years of low-cost service.

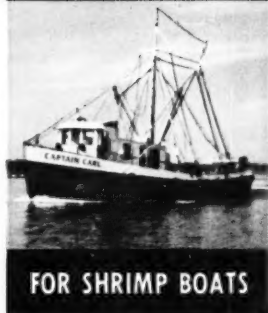
We merely ask that you inspect these great engines and judge for yourself. They're available in more than 750 different models of equipment. Write us for the list of applications or see your nearest GM Diesel distributor.

*Single Engines . . . 32 to 275 H.P. Multiple Units . . . Up to 840 H.P.*

**DETROIT DIESEL**  
ENGINE DIVISION  
GENERAL MOTORS • DETROIT 28, MICHIGAN



**FOR SPRINKLERS**



**FOR SHRIMP BOATS**





**SALAMANDER ON SEVENTH FLOOR** set fire to forms and materials on this housing project in Chicago. Lack of stairs hindered

best use of hose streams and fire became costly. See page 10 for 10-point program to prevent construction fires.

## Preplan Your Fire Protection

BY GEORGE H. TRYON, III

Assistant Technical Secretary, National Fire Protection Association

FEDERAL GOVERNMENT figures show that losses by fire are costing the nation nearly \$1,000,000,000 a year in irreplaceable materials, facilities and resources.

Fires in plants under construction usually are serious because protection has not been preplanned and conditions normally permit the fire to get a rapid start.

When a tank plant in Livonia, Mich., burned last February, the fire chief reported that four pumpers had to be used to relay water from the nearest hydrant which was over 1 mi away.

The only other water available for fire fighting at this 1,500,000-sq ft plant under construction was that supplied by three tankers available from five neighboring community fire departments. While no loss figure has been verified, the

local newspaper indicated that it would exceed \$6,000,000.

This fire grew big through conditions favoring its spread. The newspaper account lists large stores of paint, storage of fuel oil, salamanders burning in the construction area, shanties with stoves in them located within the confines of the building, tarps hanging from the ceiling while painting was going on and large areas of light wooden construction.

It is estimated that more than 350,000 sq ft of completed construction were damaged and something over 2,500 tons of structural steel were warped and twisted by the heat. Bursting oil and paint drums spread the flames and hindered the firemen in their effort to control the blaze.

• **Site Preparation** — Most con-

struction contracts call for the removal of brush, trees, debris and rubbish from a site prior to the start of building operations. Few require that even semi-permanent roadways be laid and that water mains be installed prior to the start of major construction activities.

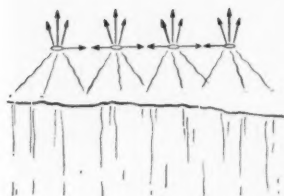
Inherent hazards due to lack of these facilities might be illustrated by a fire that occurred in St. Laurent, Que., in 1950. This property consisted of 16 groups of adjoining apartments. At the time of the fire these buildings were in various stages of construction.

Access to the property was found to be very difficult since the only street approaching the building involved was impassable to vehicular traffic as it had been excavated for the laying of sewers and water (Continued on page 104)

**BLASTING CLUES**  
from the  
**ATLAS**  
**MACHINE-GUN**  
**CAMERA**

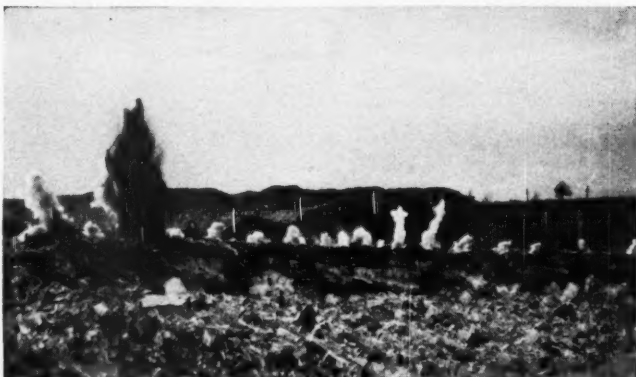


## Which Blast Gave the Best Breakage?

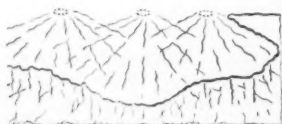


### This blast is spectacular...

These geysers of wasted explosives energy were followed by a sharp air blast and wild flying rock. With holes spaced too closely and detonation from the top, the photo shows that initial action was up-



ward and from hole to hole. As a result, the burden was quickly pushed away from the face before it could be fully stressed. This meant poor breakage ... extra drilling and secondary shooting.



### This blast is confined...

Here the holes were properly spaced and the alternate method of ROCKMASTER® milli-second delay blasting was used. Holes were detonated from the bottom. Since the initial force of the blast could not escape upward, there was practically



no air blast. The one-two punch of ROCKMASTER produced excellent fragmentation by concentrating all the available explosives energy directly at the burden. The result was a well broken and well placed rock pile—boom height for easy digging.



See how the ROCKMASTER Blasting System can work for you. Send for the free 20-page book *Quarry Blasting the ROCKMASTER Way*, illustrating milli-second delay methods with machine-gun photos.

## ATLAS EXPLOSIVES

**ATLAS**

"Everything for Blasting"

ATLAS POWDER COMPANY • WILMINGTON 99, DELAWARE  
Offices in principal cities

# THE JACKSON

## ASPHALT-GRANULAR SOIL

# COMPACTOR

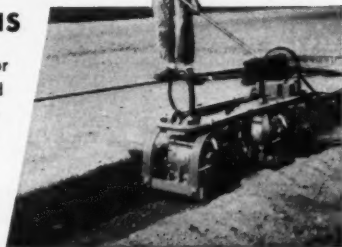
**NOW  
VASTLY MORE POWERFUL,  
FASTER**

*Quickly* **INTERCHANGEABLE BASES  
OF 12" TO 24" WIDTHS**

The new, heavy-duty, exceedingly powerful vibratory motor now incorporated in the JACKSON COMPACTOR has stepped up its walking speed and power greatly. It will compact granular soils at optimum moisture to specified density in depths of 8 to 12" at the rate of 2400 sq. ft. per hour.

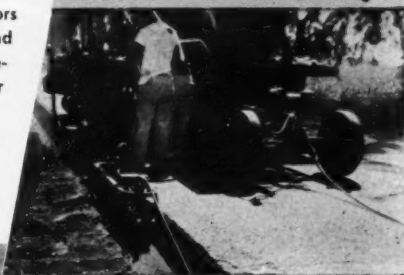
For compacting granular soil in sub-bases of concrete floors, in bridge approaches, close to abutments, and for compacting blacktop mixtures in pavement widening and patching, paving drives, walks, railway platforms and crossings, this machine with its quickly interchangeable bases, is the most convenient, mobile and efficient time and money saver on the market. A tandem version utilizing two heavy-duty compactor motors mounted on bases of proper width is amazingly efficient and economical for compacting granular fill in trenches, in pavement widening operations, to provide a stabilized base for the blacktop widening strip.

Operated by a Jackson Power Plant mounted on auto trailer with means of quickly picking up and lowering the compactor. See it at your Jackson Distributor, who has it both for sale and for rent, or write for complete details.



Tandem Compactor stabilizing granular sub-base for blacktop pavement widening strip.

Tandem Compactor easily hooks up with spreader and is controlled by spreader operator. No additional labor is required.



**JACKSON  
VIBRATORS, Inc.**  
LUDINGTON  
MICHIGAN



TWISTED, COLLAPSED, SMASHED, Structural steel (2,500 tons) was warped, and roof, and walls ruined by fire in defense plant under construction in Michigan.—United Press photo

mains. There were no nearby public hydrants, and consequently the fire department was obliged to lay long lines of hose.

Before effective water streams could be brought into service, the building of origin and five other units were involved. Had it not been for volunteers who manned fire extinguishers and used various other means to control roof fires in

nearby buildings, the loss probably would have been greater.

• **Open Flames**—One of the most hazardous temporary conditions found in buildings under construction are portable heating units erected within light wood or tarpaulin enclosures. Last March a fire occurred in a dormitory under construction in Wellesley, Mass., when, apparently, a charcoal- and

wood - fired salamander ignited non-flameproof tarpaulins erected around stoves to cure a section of new concrete.

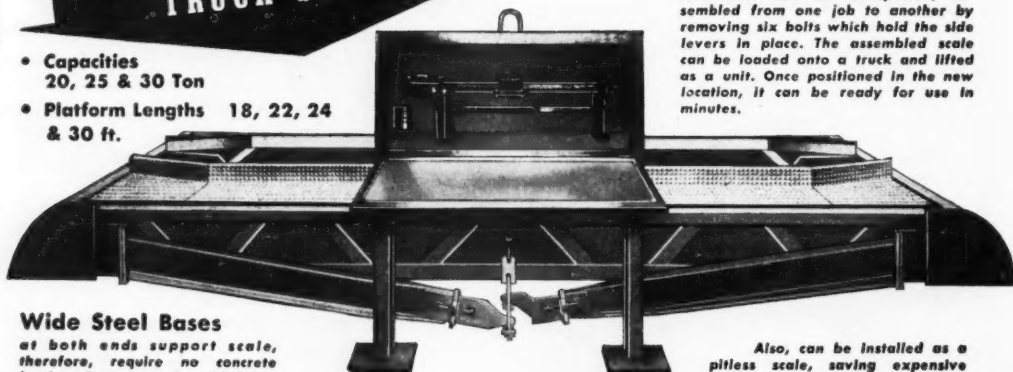
The fire had a good start before it was discovered about 10 p.m. Fortunately the alarm was given promptly and the fire chief sounded a second alarm upon arrival at the fire. The blaze had gained sufficient headway to involve the plank scaffolding around the building and was very spectacular, although of short duration because the fire department used proper methods of control.

Local fabricating, using welding and similar equipment, also can become hazardous. A rather large fire occurred in South Bend, Ind., last year in a new one-story, 100x340-ft aluminum-panel on steel frame annex to a large metalworking plant. Apparently sparks from an electric welding unit ignited solvent in a cleaning tank near by and fire flashed through five other tanks containing solvent and a low-grade naphtha. Additions were being welded to a ventilating system.

As a result of the fire, a 40x80-ft section of the building roof was

## THURMAN PORTABLE TRUCK SCALE

- Capacities 20, 25 & 30 Ton
- Platform Lengths 18, 22, 24 & 30 ft.



### Wide Steel Bases

at both ends support scale, therefore, require no concrete footing. Easy-to-read weigh-beam is chrome-plated. Other vital parts electro-plated against erosion.

## THIS SCALE CAN BE MOVED FROM JOB TO JOB, AS A UNIT

### Accurate and Portable

This scale can be transported, assembled from one job to another by removing six bolts which hold the side levers in place. The assembled scale can be loaded onto a truck and lifted as a unit. Once positioned in the new location, it can be ready for use in minutes.

Also, can be installed as a pitless scale, saving expensive concrete pit-construction costs.

### The Thurman Line Includes:

- Pit Scales up to 30-Ton capacity
- Pitless Scales • Batching Scales • Liquid Weighing Scales
- Wheelbarrow Scales • Warehouse Scales • This and other weighing equipment in sizes to fit your requirements

## THURMAN MACHINE CO. (Scale Division)

Established 1918  
152 North Fifth Street Columbus 15, Ohio



burned, warped and twisted, necessitating replacement, and approximately 50% of the processing equipment in the building was damaged.

The use of a propane gas-fired blow torch was responsible for a \$130,000 loss in London, Ont., in April, 1951. A handsome fire-resistant building was nearing completion and a quantity of chairs for use inside were stacked in their original wrappings of paper and excelsior on the floor of a room in which mastic tile was being laid.

The tile layer was working within a few feet of the piled chairs when suddenly he felt heat on his back. The chairs had caught fire and it is considered probable that the flammable cement used in the tile laying process had been ignited by the propane gas blow torch he was using.

#### Snowed in

Also in Canada last year, a school building was being erected in Edmonton, Alberta. On that particular night Edmonton was visited by a severe blizzard. The first coat of plaster had been placed on the classroom walls and the construction crew, desiring to speed drying, erected a barrel type gas-fired heater, passing the vent pipe through a window.

A nearby resident discovered the fire about 2:35 am and notified the local fire department. Of three pieces of fire equipment responding, two were bogged down in snowdrifts. A hydrant in front of the school was buried in snow and hose lines had to be run to another one, some 500 ft away.

Details of the improvised heater are interesting. It consisted of a metal drum set upright on short legs. Into this drum ran a small gas pipe which was flattened somewhat at the end to reduce the opening. There were several holes in the bottom of the drum for air supply. At the top, and to one side, there was a 6-in. sheet metal stove pipe which had a short vertical run to an elbow. This stove pipe ran horizontally from the elbow just above the heater through a hole in a wallboard panel which had been set into the window frame.

The hole was about 2 in. larger in diameter than the stove pipe. About 18 to 24 in. beyond the window the pipe turned upward and ran vertically for 12 to 14 ft to clear a parapet. There was no downdraft check on the stove pipe. The center of the heater was lo-

One in a series of factual reports from owners of Farquhar Conveyors

## FARQUHAR CONVEYOR SAVES \$125 A WEEK ON CONSTRUCTION JOB\*

\*at M & L Construction Company, Philadelphia, Pa.



**THIS** Farquhar Conveyor, used by the M & L Construction Co., unloads 6½ cubic yards of wet concrete in 10 minutes, direct to forms. On one job alone, it saved the labor of two or three men—saving \$125 a week, and quickly defraying the Conveyor's initial low cost of \$1200. In addition, costly runways, scaffolding, buggies and wheelbarrows were eliminated!

Whether you move coal, gravel, sand, aggregates, cartons, boxes, bundles, bales, or any kind of bulk or packaged materials—horizontally or from floor to floor—Farquhar can cut *your* handling costs to rock bottom! One or more of the complete line of Farquhar portable, semi-permanent and permanent conveyors will solve your handling problem. Our engineers will be glad to consult with you . . . at no obligation!



**FREE! "Owners Report"**  
—a booklet of case histories of money-saving conveyor installations. Write: A. B. FARQUHAR CO., Conveyor Dept. O-26, 142 N. Duke St., York, Pa., or 618 W. Elm St., Chicago 10, Ill.



**WORLD'S MOST COMPLETE  
CONVEYOR LINE**

A. B. FARQUHAR COMPANY Division of THE OLIVER CORPORATION

## When you're in a hole, you can bet your shirt on Jaeger pumps

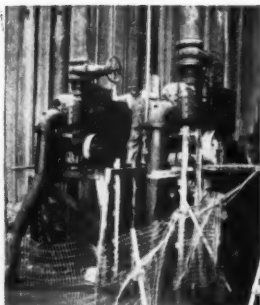


On 3 years' pier hole work in the porous gravel of the Scioto and Miami rivers, Visintine & Co., Columbus bridge builders, had 24 months of actual pumping, including 10 months' day and night operation. Their Jaeger Pumps handled it all—and never missed a working day.

### Stronger pull at slower speeds gives you more confidence in Jaeger "Sure Prime" Pumps:

Where ordinary pumps run fast to reach capacity and race up to 2000 rpm to prime, Jaeger Pumps deliver full rated volume at an easy 1200 rpm, and sure-prime quickly at no more than 1400.

This easy speed means thousands of hours more life in both pump and engine, no vapor lock on the long, hard pulls, extra performance you can depend on when the chips are down.



2 Pumps Drain 2152 Long Cofferdam: This pair of 10-inch Jaeger portables easily kept the big Cheatham Lock excavation on Cumberland River dry for U. S. Engineers.

See your Jaeger distributor, or send for Catalog P-10

## THE JAEGER MACHINE COMPANY

800 Dublin Avenue, Columbus 15, Ohio

COMPRESSORS • MIXERS • TRUCK MIXERS • HOISTS • PAVING MACHINES

### PLAN AGAINST FIRE . . . Continued

cated about 5 ft from the outside wall and about 6 ft from a wood stud partition.

Exactly what caused the fire can never be known. A cold wind could have caused intermittent down-drafts which might well have prevented an adequate air supply from coming in the bottom of the heater allowing an explosive mixture to build up, since there was no down-draft check to prevent this. At the time of the fire about \$174,000 had been expended in the construction of the school and it is estimated that the loss ran to at least \$125,000.

Another type of heater frequently used during construction work is a tar pot heated by a kerosene flame. In one plant under construction in St. Louis, Mo., the tar in the kettle was ignited by the burner, and the fire spread immediately to the formwork of a 72x83-ft boiler house being erected.

The floors and decks were to be of concrete and the walls of brick. The brick walls had been laid to the second floor level. The floor of the second story had been poured two or three weeks prior, although the forms were still in place at the time of the fire. In order to seal some joints in a pit in the first story, the tar pot was brought into the building and placed on a wooden platform.

Formwork over an area of approximately 30x70 ft was badly burned and about 2,000 of the glazed bricks on the interior were spoiled and had to be replaced.

• **Delayed Detection** — On major construction projects fire protection should keep pace with the rate of building erection. Of primary importance are provisions made for the detection of a fire and the prompt dispatch of an alarm to the fire-fighting forces. In Huntington Park, Calif., a large store under construction was discovered on fire by a motorcycle patrolman. He immediately radioed an alarm to police headquarters, which in turn notified the fire department.

The fire department found the building already substantially involved with the flames spreading and breaking through the roof. Unusually difficult was access to the interior and to certain exterior portions of the building due to construction scaffolding and forms, together with the absence of windows in the side walls which impaired

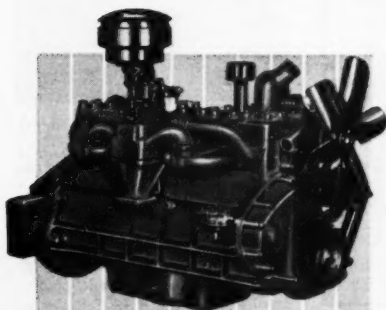
(Continued on page 109)

*easy way  
to get a  
BIG LIFT*



Photo courtesy Yale & Towne Manufacturing Company, Philadelphia, Pa.

*damaging clutch shocks  
eliminated by Chrysler  
gýrol fluid coupling*



Replacing worn out clutches on fork trucks once made maintenance costs a troublesome problem. Then a leading manufacturer of material handling equipment brought the problem to Chrysler Industrial Engineers. They suggested gýrol fluid coupling on Chrysler Industrial Engines to eliminate shock and prolong equipment life. gýrol fluid coupling practically eliminated clutch maintenance, increased efficiency of the fork truck, and contributed greater smoothness in operation.

This is one more example of how Chrysler Industrial Engines are being engineered to do specialized jobs better. Wherever gasoline power is used for indus-

trial purposes you will find many others.

Among the scores of special features available in Chrysler Industrial Engines are superfinished wear surfaces, sodium cooled exhaust valves, chrome top piston rings, updraft or downdraft carburetion and gýrol fluid coupling.

Chrysler Industrial power is not expensive. Production-line methods adapted to specialized industrial engine building, provide a custom-built industrial engine at mass production prices.

See a Chrysler Industrial Engine Dealer. Or if your problem is special, write us direct: *Industrial Engine Division, Chrysler Corporation, Trenton, Michigan.*

**CHRYSLER**  
*Industrial Engines*

HORSEPOWER



WITH A PEDIGREE

THE ACTUAL IS LIMITED:

THE POSSIBLE IS IMMENSE

NEW LINCOLN PLANT CREATED BY INCENTIVE-INSPIRED CO-ACTION IN DEVELOPING POSSIBILITIES IN PRODUCT  
© LE Co. 1952

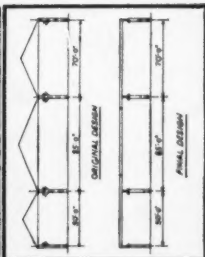
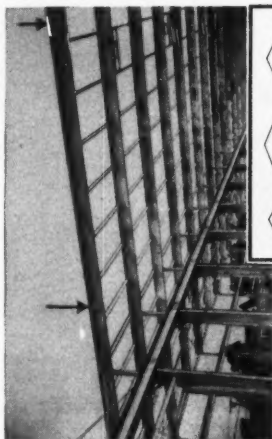


Fig. 2—Continuous Framing for the 85' bay with 30' girder bays attached to the cantilever at various steel warehouse in for A. M. Cattle Company, Architects: Lucian R. White Jr., Fabricator and Erector: Reading Steel Products.

#### HOW TO DESIGN ARC WELDED STRUCTURES

Latest data on calculations, procedures and costs are found in the new 9th Edition Procedure Handbook of Arc Welding Design and Practice. Price only \$2.00 postpaid in U.S.A.; \$2.50 elsewhere.

### WELDED DESIGN ALWAYS SAVES STEEL AND LOWERS COST

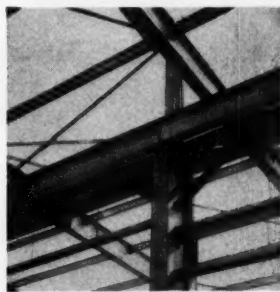


Fig. 1—Simpler Details Method for attaching crane girders to beam columns. Small stub column welded to top of W. F. beam supports roof girder construction.

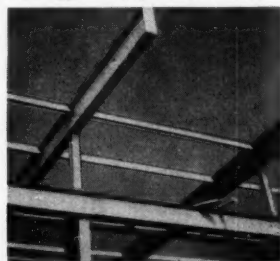


Fig. 2—Simpler Erection Cantilevered ends of roof girders project out from 50' and 70' bays and over the 85' bay are ready to receive the 30' girder to complete the 85' span.

### WELDED DESIGN COSTS 28% LESS ...CUTS STEEL REQUIREMENTS 21%

By Van Rensselaer P. Saxe  
Structural Engineer, Baltimore, Maryland

**R**IGID frame construction using welded design has saved 134 tons of steel and \$41,246 on this industrial warehouse. These figures represent a cost reduction of 28% with steel savings of 21% over riveted construction.

The original design contemplated pitched roof trusses over the entire roof area, ranging in depth according to the spans which were 50', 85' and 70'. However, to save on fabricating time a design was developed using continuous girders over columns so the entire roof girder structure could be developed using 30" depth beams of varying weights over the spans.

Of five bids submitted, the low bid was \$26 per ton less than the lowest bid on riveted construction. All steel was to be furnished by the owner except for angles and plates for the riveted design which were to be supplied by the bidder. The bid of the low fabricator for riveting was \$150 per ton with 40 additional tons of steel needed for connections. The welding fabricator's bid was only \$124 per ton including all welding rod and equipment.

HERE'S HOW

Studies in Structural Arc Welding free on request. Designers and engineers write on your letterhead to Dept. 175.

## THE LINCOLN ELECTRIC COMPANY

CLEVELAND 17, OHIO

THE WORLD'S LARGEST MANUFACTURER OF ARC WELDING EQUIPMENT





FORMS AND SCAFFOLDING HAMPER firemen battling night blaze in partially completed store in California. Sprinklers had not been installed and no watchman provided.

the full use of ground-level hose streams.

This building was to have been equipped with automatic sprinklers, but they had not yet been installed. Actually the fire was of incendiary origin. Two boys, age 12 and 14, have confessed to authorities that they piled trash on the second floor and soaked it with gasoline which they had drained from an engine on the site to start the blaze.

Regardless of the origin, had the sprinklers been in operation at the time, the fire undoubtedly would have been controlled with small loss. And if this sprinkler installation had been connected to a central station alarm system, the water flow would have provided the prompt alarm necessary to bring fire equipment to the scene immediately.

• **Watchman Services** — Where sprinkler protection is not to be a part of the completed structure or is impractical to install during construction, the minimum precaution should be the employment of a supervised watchman service, especially while the building is not being occupied by construction workers. If a watchman is hired, he should be well informed on what to do in case a fire breaks out.

The National Fire Protection As-

sociation has a pamphlet, designated NFPA No. 601, which is a recommended manual of instruction and duties for a plant watchman or a guard. This manual would have helped to prevent the difficulty experienced when a fire was discovered by a night janitor employed for watchman purposes in a school under construction in Sodus, N. Y.

The watchman was in the boiler room in the basement of the building a few minutes past 4 am when he heard loud noises. He immediately investigated and found the entire cafeteria area in flames.

In his excitement he ran from the building but suddenly remembered that he had not turned off the boilers, and returned to the school to do so. He could not use the telephone in the school as the fire cut off the passage to the temporary office.

He then ran to a local volunteer fire department about one-half mile away but could not gain admission as no one was on duty. Not realizing that there was a button on the front of the firehouse to turn in an alarm, he then ran several blocks to the day janitor's home to inform him of the fire.

All this time the fire was spreading. The alarm did not come in until approximately 5:13 am when

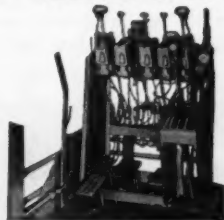


The same fine engineering that provides pneumatic controls for **THIS** cab...

provides your controls for **THIS** crane



You know the standards of dependability, precision, and instant response that has to be met by pneumatic control equipment for Diesel locomotives. You get these same qualities when you get WAB Controls for your crane, shovel or drag line—because Westinghouse Air Brake Company makes 'em both. This brings a valuable "plus" in performance, life and service.



LOOK FOR THIS MARK  FOR DEPENDABILITY

**WESTINGHOUSE**

AIR BRAKE COMPANY

WILMINGTON, PENNA.

INDUSTRIAL PRODUCTS DIVISION

# RIP-RAPPING

with

## 32 Ton Stones



\*Morrison-Knudsen Co.  
Contractors—Boise, Idaho

**A**n exclusive Owen Grapple feature contributed greatly to the speed, safety and success in placing thousands of tons of rip-rap to protect the down stream banks at Grand Coulee Dam.

The granite stones varied from 12 tons to 32 tons and no two were similar in shape.

Because of its Patented independent tine action the Owen Grapple alone could grasp such difficult objects with pressure exerted equally through all 4 tines regardless of the irregular shapes of the stones.

If you use grapples, investigate this exclusive Owen feature which speeds operations, increases safety and lowers per ton handling costs.



BUCKETS  
AND  
GRAPPLES

THE OWEN BUCKET CO.

2000 Brookwater Avenue • Cleveland, Ohio

### PLAN AGAINST FIRE . . . Continued

the day janitor telephoned the fire department. If the noise was heard shortly after 4 am, there was at least an hour delay before the fire department was notified of the fire. The electric clock installed in the school stopped at 4:27 am, indicating that the fire had reached serious proportions by that time.

• **Incomplete Services** — It often happens that in buildings under construction incomplete services such as the electrical system or the heating system may lead to difficulties. It is, therefore, important that these things be checked carefully and that instructions be given with regards to their operation.

A fire that occurred in Ortonville, Minn., illustrates this point. A truck driver delivered fuel oil to a hospital building under construction. The oil delivery pipe was installed on the outside wall but had not been connected to the fuel tank on the inside. When the oil was pumped into the outside connection, it simply flowed to the floor of the boiler room where it was ignited by the automatic burner. The fire-resistive building and the equipment installed were damaged to the tune of \$100,000.

• **"Non-Combustible" Buildings**—Some construction men believe that, because they are building with non-combustible or fire-resistive materials, fire losses are not likely to occur. Serious losses are likely, however, because untreated wood, plywood formwork, untreated scaffolding and ordinary canvas tarpaulins often are used.

This type of fire broke out in a 200- by 120-ft factory building of essentially non-combustible material. It occurred while the plant was in process of conversion and the watchman discovered the fire about 7:30 pm, noticing smoke and flames coming from a raised wooden-plank platform where some work, including brazing operations, had been done during the day.

He called the nearest fire department and then returned with a second watchman in an effort to extinguish the fire with private hose streams available. When fire-fighting equipment reached the scene the flames had forced the watchmen out of the building. By 7:50 pm the walls had given way, and structural steel framing and trusses were warped seriously by the intense heat. A loss estimated between \$200,000 and \$400,000 resulted.



## THE T6 TRAXCAVATOR SHOVEL— “The Most Complete Tool in Contracting”

according to veteran contractor  
**PAUL N. GREENE**



*Paul N. Greene Co.'s T6 is here shown at work in Fort Wayne, removing old concrete and brick paving, crossies and other debris. The powerful lift and drawbar push tears up the old surfacing and puts a heaped 1½ yds. in the bucket each pass.*

TRAXCAVATOR Shovel's ability to dig, load, bulldoze, lift, ditch, backfill and spread leads Paul N. Greene, Fort Wayne, Indiana, to say, "That T6 is the most complete tool ever owned."

And this veteran of 25 years of construction work knows what he's talking about. His T6 TRAXCAVATOR Shovel has served him on a variety of tough tasks. It has worked in nearly every material—sand, clay, rocky soil, frozen ground, debris, broken concrete—and it's done almost every job in the books.

There's no one machine on the market today that can do as many jobs as a TRAXCAVATOR Shovel... and only one man is required to operate it. Be prepared to meet any task on your next contract. See your "Caterpillar" Dealer today about delivery of the TRAXCAVATOR Shovel that meets your needs... or write direct.

**CATERPILLAR TRACTOR CO., Peoria, Illinois**

# TRACKSON

REG. U. S. PAT. OFF.

A SUBSIDIARY OF CATERPILLAR

**TRAXCAVATOR SHOVELS  
TRACLOADERS  
PIPE LAYERS  
ANGLEFILLERS**



**Rig deadlined by a flat tire demonstrates that...**

Photos by Firestone

## Better Tire Care Increases Profits

*A CM&E Maintenance Feature*

MINUTES MEAN DOLLARS in the construction business. And most of the dollars are made by large machines rolling on rubber tires. The large off-highway tire is as important to the average contractor as the diesel engine.

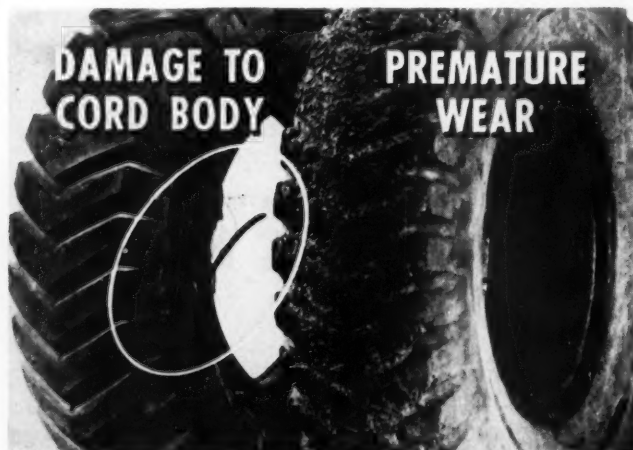
It follows then that systematic care of tires is a good way to keep down costly overhead on the job. Not only does a new tire cost real money, but also an important rig can be deadlined as effectively by tire trouble as by any other break-

down. Usually the stoppage of one unit means a percentage of loss in production for other units associated with it on the same project.

Tire manufacturers are supplying precise information on the care and repair of rubber casings used by the construction industry. Typical is the recent release of an excellent slide film, with narrative on the subject, by the Firestone Tire and Rubber Co. This film deals only with off-highway tires, their special types and uses, and care by the operators of rubber-tired equipment and by maintenance men responsible for periodic inspections and inflation checks.

Equipment supervisors are brought into the discussion also. For example, they are advised on the inter-relationship of loads, speeds and pressures.

Presented here are a number of the important phases of tire care, as advocated by Firestone. But this is only a substantial taste of the complete film. A contractor and his personnel responsible for mobile equipment will find a viewing profitable.

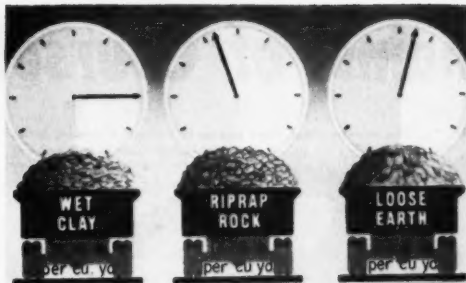


DAMAGE to cord body and premature tread wear are the two most costly enemies of tire wear and performance. Shortened tire life generally is due to improper care.

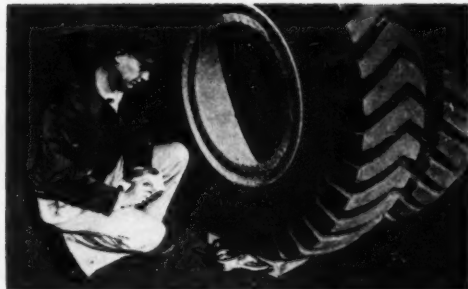
*(More photographs on the following pages)*



## TIRES AND PROFITS . . . Continued



**MATERIAL HANDLED** is important from weight standpoint. Stone is heavy, but loose earth is heavier and wet clay much more so.



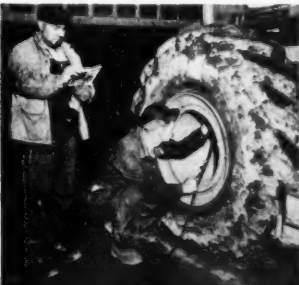
**WEIGH THE LOAD** when changing to another type of material so that exact information on load per tire is known for best care.



**X BREAKS** like this come from terrific impact when overloaded tire runs over some object.



**SHOULDER BREAK** usually caused by excessive speed—too high for particular tire design.



**DATA BOOKS** that give all the answers on loads and pressures should be consulted. (More photos on page 116)



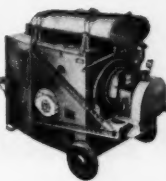
## Add weeks of working weather to your winter schedules

As inevitable as death and taxes, bad weather will hit your construction schedules this winter. Plan now to equip your jobs with Herman Nelson Portable Heaters. Lick winter slow-downs—keep crews on the job—in toughest weather.

Herman Nelson Portable Heaters deliver heat where you want it—when you want it. These versatile oil burning units heat, thaw and ventilate, do not expel dangerous fumes into enclosed working areas.

The only completely safe portable heater that uses flexible ducts to spot heat where most needed—and remember, only uncontaminated air heaters are absolutely safe.

Find out more about these Herman Nelson Portable Heaters, today. Mail the coupon below for full information.



**HERMAN NELSON STANDARD MODEL**  
Capacity 250,000-385,000 BTU/hr. Gasoline engine powered. Self-contained for areas lacking electricity. Other models available—electric powered—with capacities from 125,000 to 450,000 BTU/hr.

# HERMAN NELSON

MOLINE, ILLINOIS

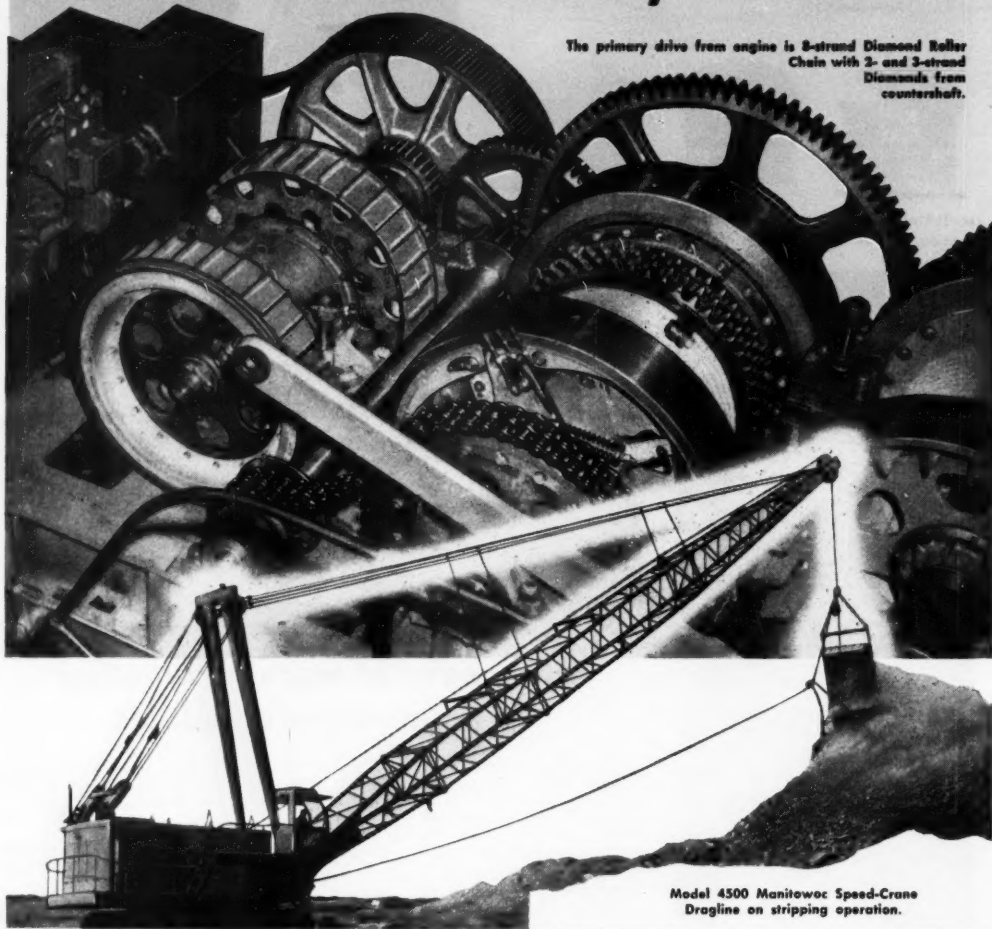
Division of AMERICAN AIR FILTER COMPANY, INC.

Herman Nelson Division, Dept. 12  
American Air Filter Company, Inc., Moline, Illinois

Gentlemen: Please send me complete information about Herman Nelson Portable Heaters and a free copy of your Cost Control Booklet.

Name \_\_\_\_\_  
Title \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_

# Diamond Roller Chains, of Course!



The primary drive from engine is 8-strand Diamond Roller Chain with 2- and 3-strand Diamonds from countershaft.

Model 4500 Manitowoc Speed-Crane Dragline on stripping operation.

## ON EXCAVATORS OF HUGE CAPACITY

● The bigger the dragline, shovel or crane, — the greater the need for continuous, uninterrupted operation. Delays are extremely costly where investment is so great.

It is a well recognized fact that Diamond Roller Chains are regularly chosen above all others because of their uniform long-life reliability, extra reserve strength, and maintained high efficiency of power transfer . . . On the big Manitowocs, 8-strand Diamond

Roller Chains are the primary drives with 2- and 3-strand drives from countershafts.

For original equipment and replacement, the Roller Chain with the identifying "diamond" on every link is your assurance of maximum performance.

### DIAMOND CHAIN COMPANY, Inc.

Dept. 418, 402 Kentucky Avenue, Indianapolis 7, Ind.

Offices and Distributors in All Principal Cities

Refer to the classified section of your local telephone directory under the heading CHAINS or CHAINS-ROLLER

# DIAMOND



# ROLLER CHAINS

"... the 99-H is the most versatile grader I have ever seen, as well as the most maneuverable."

"This grader is on U.S. Route 35, where we are engaged in a project involving 2.05 miles of grading, draining and ditching, as well as paving the highway in North Charleston between Two Mile Creek and Tyler Creek.

"This is the first Austin-Western grader to be used in this family of contractors, and I have no hesitancy in saying that the 99-H is the most versatile grader I have ever seen, as well as the most maneuverable. It will do jobs that other graders will not do, and, when the going is really tough, it will operate under conditions that other graders would not attempt. Just recently, after several days of heavy rain, the 99-H was doing its chores on schedule. Two other graders of well-known makes were compelled to stand by until the terrain was favorable to the extent that they could be put to work. This adds up to more hours operation every week for the 99-H.

"Aside from the standpoint of the 99-H's ability to take tough going in stride, it is also the easiest grader to operate that I have ever owned. The operators like it, which means we get more efficiency from them."



Howard Price, President  
Howard Price and Company  
Huntington, W. Va.

HOWARD PRICE AND COMPANY  
*Howard Price*  
President



**T**hank you, Mr. Price, for putting into words—what so many other contractors have learned—that Austin-Western's *exclusive* combination of ALL-WHEEL DRIVE and ALL-WHEEL STEER means top grade performance by America's top grader.

AUSTIN-WESTERN COMPANY • Subsidiary of Baldwin-Lima-Hamilton Corporation • AURORA, ILLINOIS, U.S.A.



# Dependable Construction Equipment



## Proved Over 100 Years

Manufacturers of Pile Driving Hammers and Pile Extractors  
**VULCAN IRON WORKS • 329 NORTH BELL AVENUE • CHICAGO 12, ILL.**

**DO THOSE PLOWED-FIELD JOBS THIS WINTER  
While the ground is frozen!**

**NO CROP DAMAGE • NO MUD • BETTER PUBLIC RELATIONS**



### PENGO EARTH AUGERS

- ★ Twin helix—no back thrust!
- ★ Bores true, clean holes in any soil, most sandstones and hardpans, frozen ground, permafrost!
- ★ All wearing parts replaceable on job!
- ★ Made in 15 sizes, 10" to 54" hole diameters, to fit all makes of heavy-duty earth boring machines. Larger sizes on order.



### PENGO CUTTING HEADS

- ★ Easy installation—welds to your present helix.
- ★ Bores where you never could before!
- ★ Wearing parts replaceable on the job, interchangeable with PENGO Auger parts.
- ★ Made in 9 sizes, 8" to 24" diameters. Larger sizes on order.



### PENGO ANCHOR AUGERS

Specially designed to bore holes for expanding anchors. 3-flight helix carries dirt out fast—completes hole with half the usual trips down and up! In 9", 11" and 13" sizes for 8", 10" and 12" anchors. Parts and features same as PENGO Augers.



### PENGO BUCKET CUTTERS

Fast-digging PENGO Auger helix to weld to your present bucket bottom hinge. Available for buckets 16" through 36" in diameter. Offers same money-saving features as PENGO Augers.

**"Get the  
PENGO  
WISDOM  
TOOTH"**



**It knows  
how to  
bore holes"**

Quick-replaceable, drive-on "PENGO Wisdom Teeth" are cast from special abrasion and shock-resistant steel alloy; give far longer service life! Used on all PENGO Augers and Cutting Heads.

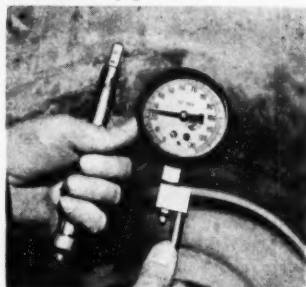
ORDER NOW. SEND FOR LITERATURE: PRICES



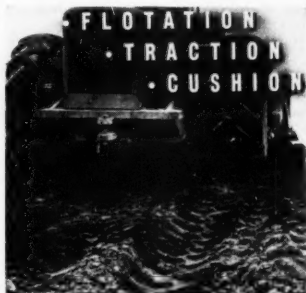
**PETERSEN**  
ENGINEERING CO.  
Manufacturers  
Santa Clara, California

### TIRES AND PROFITS...

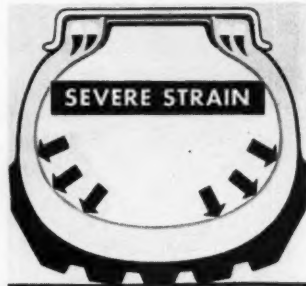
Continued from page 113



MASTER TIRE GAGE, for checking service gages regularly is recommended practice.



LOW-PRESSURE TIRES provide flotation, traction and cushion under rough-service conditions.



OVERINFLATION puts a severe strain on cords of tire body—makes them taut, unyielding.



OVERINFLATED tires ride on tread centers, wear rapidly due to concentrated load.  
(More photos on page 120)



# The Reader



# His Mark

**T**HE ABC SYMBOL which is printed at the head of this page is, in a very real sense, *your* brand on this magazine. Those letters stand for Audit Bureau of Circulations. The symbol indicates that the magazine is a member and supporter of that Bureau.

To the advertiser who contemplates using the magazine as an advertising medium, this symbol has a well-recognized significance. It tells him that the circulation records and practices of the magazine are wide open to the auditors of the Bureau, who check the publisher's claims and make public the precise terms and conditions under which subscriptions are obtained. And it assures him that the magazine stays in business by virtue of a demonstrated demand from its readers as shown by their paid subscriptions or newsstand purchases.

**B**UT HERE we are concerned only with the significance of ABC to you as a reader. For when the advertisers, the advertising agencies, and the publishers founded the Bureau nearly forty years ago to help establish honest circulation figures, they unwittingly set up a cooperative institution that has become a major safeguard for the interests of the reading public.

That is because membership in ABC constitutes one of the strongest guarantees that any publication can offer of its primary devotion to the interests of its readers. And by making that guarantee possible, ABC becomes a major safeguard of the freedom of the press, an objective of exceptional importance in these days when the public is flooded with propaganda from so many sources.

**T**HE SUREST MEANS by which to preserve a free press is to keep it directly answerable to the reading public it would serve. It follows, then, that the survival of a truly free press must depend on its acceptance by that public; and that means in turn that the people must have in their hands some adequate means for holding the publishers responsible to them.

No one has yet devised any means to that end more simple, more direct or more practical than the paid subscription or newsstand purchase price. The right to purchase or refrain from purchasing a publication gives to the readers and to no one else the power to pass judgment on whether that publication should continue to serve the reading public.

**T**O SUPERVISE this vital process, to check and certify the integrity of the publication's circulation methods and claims, requires a strict and continuing audit of each publication's success in meeting this test of its public acceptance. To that essential function the ABC has contributed mightily by the conscientious performance of its mission. And that is why we are able to have a press supported, for the most part, by advertising revenues, but not controlled as to its circulation or content by any influence other than its readers.

When an advertiser consults the ABC statement of a publication to ascertain the amount, the quality and the trend of its circulation, he does so in the legitimate pursuit of his own interest. But at the same time, inevitably, he is helping the ABC to keep the press responsible and responsive to the reading public. For, in effect, he is asking the publication to demonstrate through its circulation figures that it owes its standing to a voluntary demand by its readers.

**S**O THE Audit Bureau of Circulations, by auditing and certifying paid circulations, has come to perform a vital service to the readers of this magazine and of every other member publication. And in performing that service, it helps to maintain in our country a press that is answerable to the reading public and to it alone. So long as the practices and principles for which ABC stands continue to prevail in American publishing, we shall find in it a sure support for a truly free press, responsible only to the public it serves.

*McGraw-Hill Publishing Company*

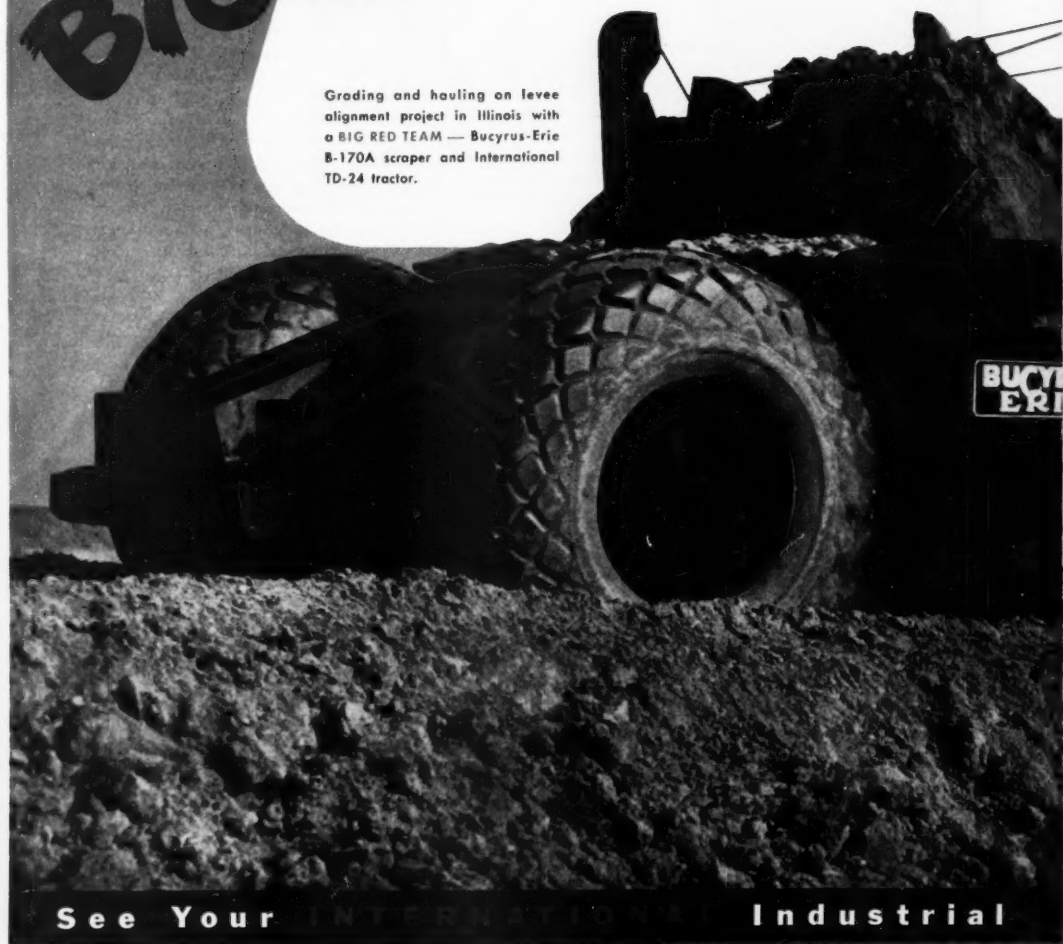
Why

**YOU CAN**

with the

**BIG RED TEAM**

Grading and hauling on levee alignment project in Illinois with a BIG RED TEAM — Bucyrus-Erie B-170A scraper and International TD-24 tractor.



See Your **INTERNATIONAL** Industrial

# MOVE MORE DIRT

**BIGGER PAYLOADS EVERY TRIP . . .** Bucyrus-Erie scraper "boiling action" loading directs dirt toward center of bowl, breaks up chunks to eliminate voids and assures a full, compact load in a short run.

**MORE TRIPS EVERY SHIFT . . .** Gooseneck permits short turning for greatest maneuverability — big tires provide maximum flotation — low center of gravity assures exceptional stability on uneven terrain. These add up to easier hauling and more trips every shift.

**FAST, CLEAN DUMPING . . .** Positive rolling ejection requires less horsepower, permits dumping in high tractor gear for faster action on either spot dumps or spreading. Apron adjustable for best dumping of any type material.

**MINIMUM SERVICING . . .** Lubrication points are easy to see, easy to get at — sealed wheel bearings extend greasing interval to 500 hours — cable-saving features cut replacement time and cost — simple construction minimizes downtime. All these mean more time for moving dirt.

19752C

## Bucyrus-Erie Company

South Milwaukee, Wisconsin



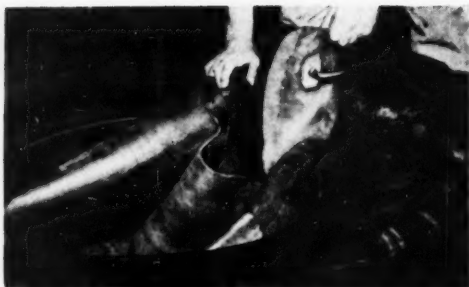
**3 B-Type**  
**BUCYRUS ERIE**  
SCRAPERS TO CHOOSE FROM

Model	Capacity	
	Struck	Heaped
B-250	22 cu. yd.	27 1/2 cu. yd.
B-170A	16 cu. yd.	21 cu. yd.
B-113	10 cu. yd.	14 cu. yd.

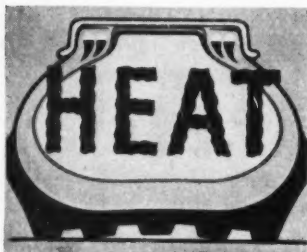
**Tractor Distributor**



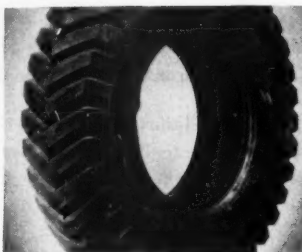
**IMPACT BREAK** caused mainly by overinflation. Taut body cords are snapped by normally harmless object as tire strikes it.



**SLIPPAGE** of the tire on the rim is one cause of torn valves. Condition is aggravated by underinflation on flat-base rims.



**EXCESSIVE HEAT** comes of underinflation. This is more harmful than overinflation.



**BLOWOUT-DESTROYED TIRE** first had internal break due to underinflation.



**STUBBORN BEADS** are best loosened by special tools to avoid tire damage, save labor.  
(More photos on page 124)

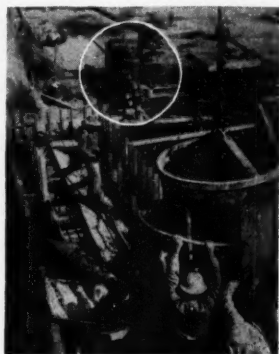
## STANG WELLPOINTS AVERT CAVE-IN

### IN DEEP VERTICAL EXCAVATION



See dry, stable vertical banks as Stang Wellpoints pre-drain water-bearing sand.

**T**he Aetna Construction Company of Los Angeles excavating 10 feet deeper at one end of a 25 foot storage reservoir discovered that underlying the heavy clayey soil was coarse, water-bearing unstable sand threatening to undermine the general subgrade, and the adjacent concrete construction. Working space was limited by the vertical sides of the cut and by the concrete. This condition was speedily and economically corrected by the use of STANG Wellpoints which permitted excavating and concreting in the limited working area with no undermining of overlying material and no disturbance of adjoining construction.



Stang Wellpoint installation surrounding pit as construction proceeds in the dry.

### JOHN W. STANG CORPORATION

Engineers and Manufacturers of Dewatering Equipment

NEW YORK CITY, N. Y., Number Two Broadway, Telephone: Whitehall 3-0565

BELL, CALIFORNIA, 8221 Atlantic Ave.

P. O. Box 631 Telephone: Logan 5-7421

OMAHA, NEBRASKA, 2123 S. 56th St.

Telephone: Walnut 7798



*in your Sunday best...and in concrete construction*



## ... details make the difference!

Shoes that sparkle . . . the right necktie . . . maybe even a flower in your lapel! Yes, it's the little things that make you look like a million when you dress up in your Sunday suit. And all through the rest of the week, when you work with air entraining concrete, remember—here too, *it's the details that make the difference!*

Construction men know that differences in the type and gradation of the aggregate they use and even the temperature of the mix will result in differences in the amount of air entrained in concrete. It's also important to remember that even such a "small" detail as the condition of your mixer blades can cause marked variations in the air entraining capacity of your concrete. *Worn blades cause entrainment of less air than new blades . . .* Because all air entraining cement is a standardized product—manufactured to rigid Federal and ASTM specifications—provision for these important "little" details must come from you!

That's why, on jobs that call for air entraining concrete, you'll find it wise to add the *required* amount of any well known air entraining agent to regular portland cement at the mixer. Then you'll be *sure* of air entrained concrete that looks—and performs—"like a million"! Just remember, use air entraining cement only when you're sure . . . remember too—air entraining or regular portland, there's no better cement than Marquette.

★ ★ ★

*If you have any problems or questions on the use and mixing of air-entrained concrete, the Marquette Service Engineer will be glad to help and advise you—contact any Marquette office.*

# Marquette Cement

**MANUFACTURING COMPANY**

**SALES OFFICES:** Chicago • St. Louis • Memphis • Jackson, Miss. • **PLANTS:** Oglesby, Ill.  
Des Moines, Ia. • Cape Girardeau, Mo. • Nashville, Tenn. • Cowan, Tenn. • Brandon, Miss.

**PORTLAND • HIGH EARLY STRENGTH • AIR ENTRAINING • MASONRY**



# *It's the* Operators'



**BEST BY A DAM SITE.** Troy Hood and Jack Rank (shown here with Dirt Foreman Sam Crawford) operate TD-24s for Guy H. James, building the great Oahe Dam in South Dakota. Hood says: "I can keep right behind the scrapers—catch 'em sooner and push 'em out faster because TD-24 controls are easier." And Rank chimes in: "Much easier to handle than any other tractor."



**"ALMOST THINKS FOR ITSELF!"** That's what Jess Leatherwood says about the Big Red TD-24 he operates for Macon Construction Co., Franklin, N. C. "It pushes more, moves it faster and handles easier than any other crawler I've ever been on."



**"WE RIP PLACES YOU'D USUALLY HAVE TO BLAST,"** says another Macon operator, Roy Cantrell. "We've been working in the Blue Ridge Mountains on rock you couldn't touch with a dozer till the TD-24 came along. Now we blade where we couldn't scratch before, and rip where we used to dynamite!"



**"OUR TD-24s REQUIRE LESS SERVICE,"** says John Tickler, Service Superintendent for John E. Bloomer Construction Co. "These big red machines are very accessible, very easy to maintain. And when we do need help, the International Distributor is always on the job!"

# Crawler!



**Read what the operators and servicemen say about "Big Red", the International TD-24...**



"HOW DO I LIKE 'BIG RED'?" asks George Miller. "Listen: This TD-24 is just the fastest and surest handling tractor there is, that's all! Nothing I've seen can touch it for moving dirt." George and his TD-24 move dirt in North Carolina for Kiker & Yount Construction Co.



"GREATEST THING I'VE SEEN," says Bruce Olson (right), TD-24 operator and Sec.-treas. of G. A. Olson Construction Co., Marshall, Minn. "The TD-24 is the easiest crawler of all to operate. The high-low shift is great for whipping around to the cut after dumping the load. It's the fastest equipment going for anything up to a 3,000-foot cycle!" Man in center is Glen Olson, Bruce's brother and company president. At left is Superintendent Donald Young.

Ask the men who know. Ask the operators. They know that *this* makes "Big Red" the Champ:

#### **TD-24 POWER**

148 maximum drawbar horsepower, more than any other crawler on the market.

#### **TD-24 SPEED**

Up to 7.8 m.p.h. with 8 forward speeds, 8 reverse. Moves loads faster, gets back quicker for more work-cycles per hour.

#### **TD-24 STEERING**

Fingertip control for pivot-turns, feathered-turns and turns *with power on both tracks.*

#### **TD-24 STARTING**

Exclusive International push-button starting for quick starts any time in any weather.

Want to know more reasons why the Big Red TD-24 is the work-champ of the world?

Ask your International Industrial Distributor. Ask TD-24 operators. Ask the men who know—and you'll be a TD-24 man yourself from then on in!

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS

**SEE YOU AT THE POLLS!**



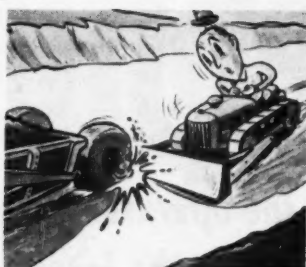
**INTERNATIONAL**

**POWER THAT PAYS**

**TIRES AND PROFITS . . . Continued from page 120**



**PIVOTING** may be necessary at times but regular practice causes fast tread wear.



**SLASHING** with a dozer blade can occur if turn is made too quickly after scraper push.



**SEPARATION** of tread and ply occurs if cuts are neglected, dirt and water get in.



New Scruggs,  
Vandervoort, Barney  
department store,  
Clayton, Mo.

Architect:  
Harris Armstrong.  
Consulting Engineers:  
Neil J. Campbell.  
Contractor: Gumble  
Construction Co.

## LACLEDE JOISTS

for

## STRENGTH... ECONOMY!

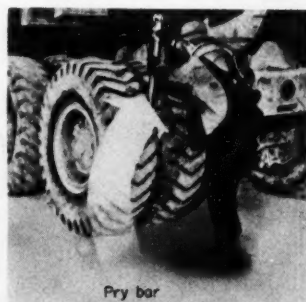
For lightweight, functional design, builders, architects and engineers wisely specify these Laclede Steel Products for floor and roof construction.

**WELDED WIRE FABRIC • FORM & TIE WIRE  
MULTI-RIB REINFORCING BARS • JOISTS  
CORRUGATED STEEL CENTERING**

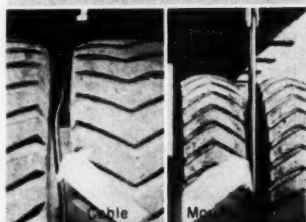


**LACLEDE STEEL COMPANY**

St. Louis, Mo.



Pry bar



**STONES WEDGED** between duals damage sidewalls. Pry them out or install rock ejectors.



**END OF THE TRAIL** for a good-looking tire, scrapped because of ruined sidewall.



# "Extra safety factors"

make K-375 with power hydraulic controls ideal rig for steel erection

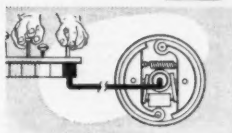


LONE STAR STEEL COMPANY, Lone Star, Tex., is rushing a \$82,000,000 plant expansion. On this job, they're handling and erecting structural steel with a Link-Belt Speeder K-375 crane with 90 ft. boom. Iron work foreman Ellis D. Martin says, "I like the extra safety factor of the K-375. It does a good job of handling any load in its rated capacity." Crane operator LaVon Swagger adds, "Speed-o-Matic power hydraulic controls are the best I've ever used."

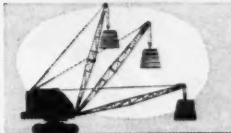
Here are Link-Belt Speeder **PLUS** FEATURES that speed work, cut costs



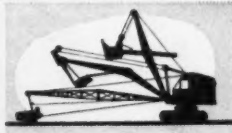
**Speed-o-Matic Controls**—fully hydraulic! You "feel" the load all the way. Simple, easy—fingers instead of muscles do work.



**Speed-o-Matic Clutch**, hydraulically actuated, simple, smoothly responsive. Runs cool. Eliminates need for frequent adjustments.



**Independent Boom Hoist**—controlled power down and up. Boom, hoist, swing simultaneously or independently. Optional.



**Convertibility**—designed for peak production as shovel, crane, dragline or trench hoe. Convert in field—quickly, easily.

12,987-A

## LINK-BELT SPEEDER

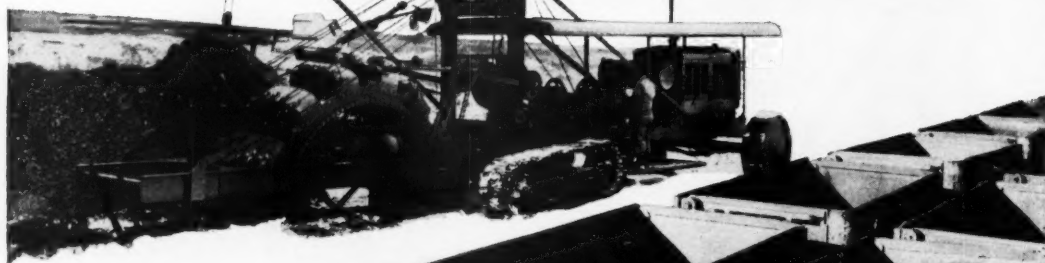
CORPORATION

Builders of the most complete line of shovels, cranes and draglines

CEDAR RAPIDS, IOWA

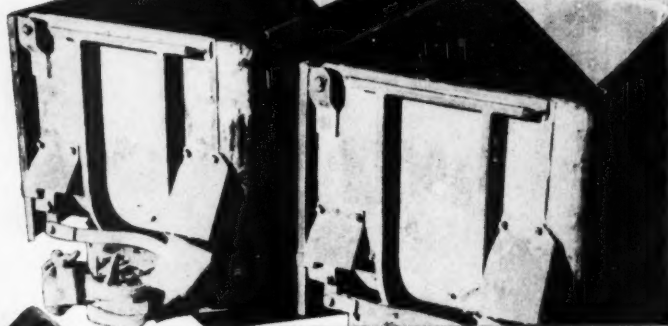
# Here's how to make money...

**By increasing output**



"TRI-TEN can be used at low temperatures without becoming brittle and breaking away," says Mr. George E. Miller, Chief Engineer, Findlay Division of Gar Wood Industries, Inc. Gar Wood uses U-S-S Tri-Ten steel in the digging rims and buckets of its pipeline ditchers. Tri-Ten steel assures longer wear for these vital parts, yet because it weighs no more, it does not destroy the machine's balance.

IN THE LAST TEN YEARS, these heavy-duty dump cars have been used in excavating and concreting three tunnels. Each car has hauled 27,000 tons of rock. In tunnel driving, cars take a very severe beating. Several have even dropped down a hundred foot dump. Yet, according to the owner, S. S. Magoffin Company of Englewood, Colorado, "The car bodies show very little wear, and with a coat of paint, would be hard to tell from new bodies." Bottom liner plates and bodies of these cars were made with  $\frac{1}{2}$ " U-S-S Cor-Ten steel. Cars were constructed by C. S. Card Iron Works Company, Denver, Colo.



## U-S-S COR-TEN STEEL

U-S-S Cor-Ten is a ductile, low-carbon chromium-nickel-silicon-copper-phosphorus steel having a yield point of 50,000 psi min., and a tensile strength of 70,000 psi min. in thicknesses  $\frac{1}{2}$ " and under.

Its resistance to abrasion and shock is superior to structural carbon steel; its fatigue resistance—that is, its ability to withstand repeated stresses—is 60% greater. What particularly distinguishes U-S-S Cor-Ten steel is its unusually high resistance to atmospheric corrosion—4 to 6 times that of plain steel, 2 to 3 times that of copper steel. This property helps to assure the long life and low maintenance cost of any equipment, subject to rusting, in which Cor-Ten steel is used, whether to obtain greater durability or to reduce weight.

U-S-S Cor-Ten steel is produced in all standard products—plates, shapes, bars, sheets, strip, special cold-formed sections and wire. Recommended particularly for application in light and intermediate thicknesses.



BECAUSE of its weight-saving qualities and high resistance to abrasion and fatigue, A. Crosti & Son, Inc., of Vineland, N. J., uses U-S-S Max-Ten steel in the floors of its truck bodies. This high-lift dump truck has been hauling rock and sand since March, 1950. The bottom has been subjected to an unusual amount of abrasion, yet it is still in excellent condition.

**and lowering maintenance**

# **with U·S·S High Strength Steels**

*Earth-moving equipment makes money only when it's on the job. Breakdowns not only involve big repair bills, but cause you to lose profits by lowering output and increasing your job time.*

With U·S·S High Strength Steels breakdowns can be greatly reduced . . . equipment can be built to stand up, day after day, under the hardest kind of service, regardless of weather or ground conditions. That means repair and maintenance bills are cut to a minimum, work stoppages are fewer and the output of your equipment is substantially increased.

With U·S·S COR-TEN, U·S·S TRI-TEN and U·S·S MAN-TEN steels you can provide maximum strength and toughness in parts ordinarily prone to fail. These steels afford high resistance to wear, fatigue, abrasion and impact. And if your equipment must operate in sub-zero temperatures, or under unusually corrosive conditions, high resistance to these destructive forces can readily be secured by using these steels.

These famous "steels that do more" have a yield point 50% higher than ordinary structural steel. And that means another big advantage. It means that you can materially increase the strength of parts *without increasing their weight*. Or you can use lighter sections and *reduce weight* while retaining the same strength factors as you had before. In the latter case, *substantial savings in steel will result*.

For 16 years, our engineers have cooperated with manufacturers in applying U·S·S High Strength Steels to construction equipment famous for its reliability, long life and low maintenance cost. They will be glad to show you how these tougher, stronger, more durable steels can be applied to . . .

***Give your equipment the stamina to stay on the job!***

## **U·S·S TRI-TEN STEEL**

This manganese-nickel-copper steel has a yield point of 50,000 psi min., and a tensile strength of 70,000 psi min. in thicknesses  $\frac{1}{4}$ " and under, with moderately lower values as thickness increases to a maximum of 4". It has superior toughness and ability to withstand shock at sub-zero temperatures. It has greater resistance to abrasion than structural carbon steel (ASTM A7) and its fatigue resistance is 50% higher. U·S·S TRI-TEN steel's resistance to atmospheric corrosion is slightly superior to that of copper steel.

Because U·S·S TRI-TEN steel has very good welding properties in intermediate and heavier thicknesses, this grade of U·S·S High Strength Steel is highly recommended for application in heavy-duty equipment where maximum ruggedness and strength with minimum weight are prime requisites. Produced in plates, structural shapes, bars and bar shapes.

*During the present critical shortage of nickel, an emergency manganese-copper-vanadium grade, identified as U·S·S TRI-TEN "E" steel is being produced in place of U·S·S TRI-TEN steel. It has equivalent engineering values and its use is recommended in place of U·S·S TRI-TEN steel.*

## **U·S·S MAN-TEN STEEL**

U·S·S MAN-TEN is a grade of manganese-copper steel that, at relatively low cost, provides toughness, workability and weldability in a higher degree than obtainable in carbon steel of the same strength level. Its atmospheric corrosion resistance is slightly higher than that of copper steel.

U·S·S MAN-TEN steel, in thicknesses up to  $\frac{1}{4}$ " inclusive, has a yield point of 50,000 psi min. and tensile strength of 70,000 psi min. Its abrasion resistance is greater than that of structural carbon steel (ASTM A7); its fatigue strength is approximately 40% higher, insuring greater ability to withstand vibration and reversal of stresses.

U·S·S MAN-TEN steel is produced in plates, shapes, bars, sheets, strip, special cold-formed sections and other forms. It is particularly recommended for use in light and intermediate thicknesses.

3-1419

UNITED STATES STEEL COMPANY, PITTSBURGH • AMERICAN STEEL & WIRE DIVISION, CLEVELAND • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO  
NATIONAL TUBE DIVISION, PITTSBURGH • TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. • UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS  
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

# **U·S·S HIGH STRENGTH STEEL**



**UNITED STATES STEEL**

## As It Was in the Beginning



### **Bulldozer**

*WAS THE NAME GIVEN TO THE  
MARSHFILLER  
BUT NOBODY KNOWS WHY . .*

FILLING SWAMPS AND BOGS  
WAS THE PROBLEM THAT LED  
TO THE BULLDOZER IDEA .  
EXTENDING FILLS INTO WET  
SPOTS HAD ALWAYS BEEN A  
HAND SHOVEL JOB.  
THE FIRST 'DOZERS WERE  
CONTRIVED ON THE JOB.

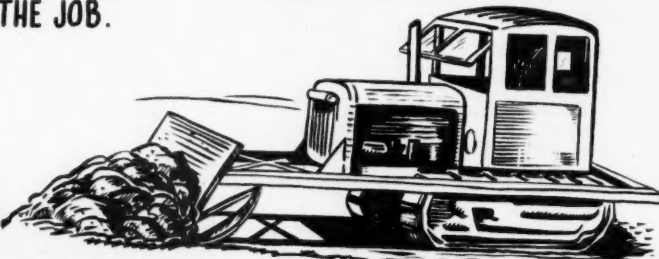
MANUFACTURERS  
BEGAN BUILDING  
BULLDOZERS FOR  
USE WITH TRACTOR  
POWER IN THE  
1920's. ANGLE BLADES  
AND TILT MECHANISMS FOLLOWED  
QUICKLY AS 'DOZER IMPROVEMENTS .

IN 1915 A BULLDOZER WAS OFFERED  
COMMERCIALLY THAT CLAIMED TO  
SAVE LABOR OF 40 MEN.



#### SPECIFICATIONS

BLADE . . . 4 FT. WIDE 2 FT. HIGH  
TONGUE LENGTH . . . . 7 FT. 7 IN.  
WHEEL DIAM. . . . . 30 IN.  
WEIGHT . . . . . 800 POUNDS



*by DAN BURKE  
& DAVE HARVEY*



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in UNIT COST because

✓ better equipment costs  
more to make.

*But*

MORETRENCH IS LOW  
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- ✓ less units dry the job.
- ✓ installation, operating and removal costs are therefore lower.
- ✓ less manpower is required.
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# On-the-Job

## CONTRACTOR-LABOR RELATIONS

by LEON B. KROMER, JR.

### CISC May Change Rules

WITH ITS CASE LOAD increased and appropriations severely cut, the Construction Industry Stabilization Commission may change its rule requiring pre-approval for the 15c hourly increase allowed for 1952. In addition to the need for saving on a slim budget, pressure for the change is being exerted by the building trades unions. They claim that contractors frequently agree to pay the increase on the first payroll after approval, and men thereby lose up to \$6 a week waiting for what has become an almost automatic CISC approval.

The Commission may develop some type of reporting by contractors and unions with a stipulated waiting period before the 15c is put into effect. This will follow the lead of its parent, the Wage Stabilization Board, which has a number of self-administering regulations.

Note: As yet the rules have not changed so don't put any increases into effect without a CISC decision.

### Wage Stabilization

Any questions you may have on wage and salary controls should be directed from now on to the nearest Regional WSB Office of Salary Stabilization. Because of appropriation cuts the WSB has had to discontinue the information and advisory services performed by the regional offices of the Wage-Hour Division.

Telephone inquiries, requests for rulings or interpretations (filed on WS-1), or wage increase petitions (WSB-100), should be sent directly to the Regional Wage Stabilization Board or Office of Salary Stabilization. Don't send them first to the nearest Wage-Hour Office, as you did heretofore. Remember to get all rulings or opinions in writing (CM&E, July 1952).

Regional Wage Stabilization Boards are located in Boston, New York, Philadelphia, Richmond, Atlanta, Cleveland, Detroit, Chicago, Minneapolis, Kansas City, Dallas, Denver, San Francisco, and Seattle.

On salary problems, deal with the nearest regional Office of Salary Stabilization. They are located in Atlanta, Boston, Chicago, Cleve-

land, Denver, New York, Philadelphia and San Francisco.

Point to remember: Wage increases for your employees on an hourly basis, except building trades employees, are subject to WSB jurisdiction and regulations. Increases for monthly salaried employees are under Salary Stabilization Board rules and regulations.

### NLRB Rulings

The National Labor Relations Board recently ruled that an association of employers cannot lock out non-striking employees in retaliation for a strike ordered by the union against one of the members. Although the case involves an association of furniture stores, the ruling is applicable to contractors' associations who may be faced with similar maneuvers.

In the present case negotiations between the association and the union had reached an impasse. The union struck one of the members of the association, whereupon all the other members shut down and laid off their employees in what was claimed to be counter measure to the union's tactics.

A majority of the Board, with Chairman Herzog dissenting, held the mass layoff to be illegal interference with the right of "concerted activity" guaranteed to employees by the Act. It was also held to constitute illegal discrimination in employment "tending to discourage union activity".

Unless the ruling is reversed by a Circuit Court, it will stand. Should contractors' associations want to retaliate in this way against a union "picking off" one or more members they may face an unfair labor complaint.

### Jurisdictional Decisions

If you have agreed to follow the procedures of the National Joint Board for settling jurisdictional disputes (CM&E June 1952), don't take your jurisdictional troubles to NLRB and the courts.

One contractor went to the Board (CM&E Feb. 1952). Since he and the unions involved — carpenters and laborers — were under agreement to submit jurisdictional dis-

putes to the National Joint Board, the NLRB refused to intervene.

Dissatisfied over the National Joint Board's decision awarding the work to carpenters (the dispute involved stripping of wooden concrete forms), the contractor appealed to the U. S. Circuit Court of Denver. The Court refused to intervene.

Based on this case, it is clear that: (1) NLRB will not hear jurisdictional dispute cases if the contractor and unions have agreed to submit such disputes to the National Joint Board; (2) Circuit Courts probably won't review the NLRB action; (3) if you have agreed to National Joint Board procedures, you can't back away from its decision in a jurisdictional dispute.

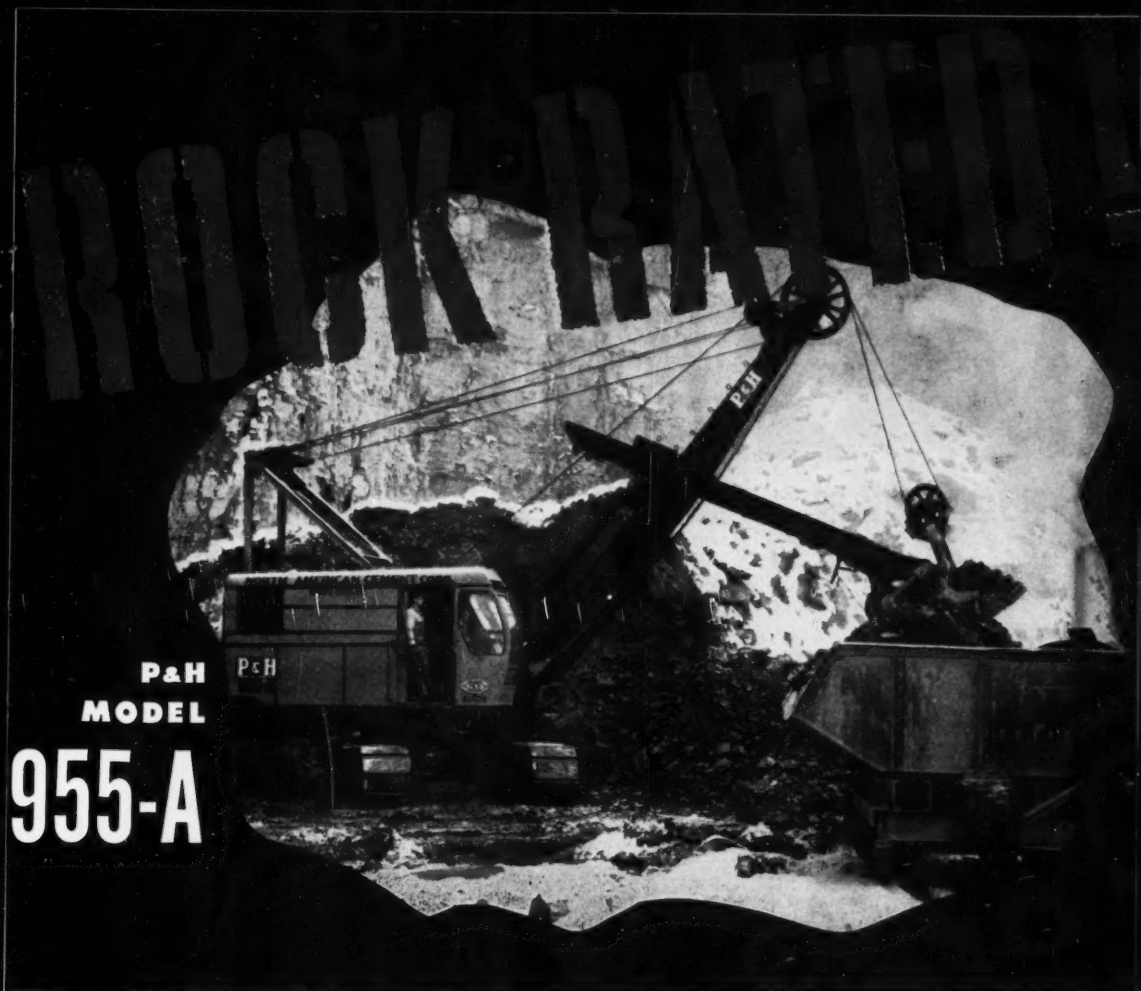
### Time Off to Vote

Check your state law on time off to vote on election day. Many states have laws requiring that you give employees time off to vote. For example, in New York state you must give employees at least two hours off with no pay deductions. The California law is about the same. On the other hand, the Missouri law says employees must be given four hours to vote with no deductions in wages. There are a number of states that have no such provision in their laws; these include, among others, Connecticut, Delaware, Florida, Georgia, Mississippi, New Jersey, Pennsylvania and Rhode Island.

### Do You Know That...

The International Association of Machinists, AF of L, has submitted a proposal to the AF of L Executive Council to handle jurisdictional disputes with the carpenters and other building trades unions? It is doubtful that the plan will be accepted at this AF of L Convention.

The new co-chairman of CISC is Duncan Campbell, formerly a public member? He replaces Archibold Cox who was made chairman of the WSB. Lawrence E. Seibel was moved up from alternate to full public member. He was the Commission's executive director.



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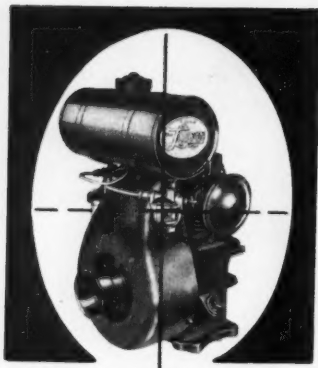
Add to this the rugged, rock-rated construction of welded high tensile steels—the

smooth hydraulic control—the greater stability and digging power—and you have the greater output which means greater profit. Better get all the facts about this outstanding machine—companion to the famous P&H 1055 ( $3\frac{1}{2}$  yds.). Ask about the P&H 955-A today.

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Hart-Case Company, Inc. Canada: Hart-Emerson Co. Ltd., Winnipeg.

## Construction Incentives

FOR HOUSE-BUILDING and related trades in Norway, wage lists have been set up for all work handled by union labor. These rates have been partly compulsory (for some trades) and partly taken for granted and are being used in a satisfactory manner. There are no such wage lists for heavy construction, but work on a job-contract basis is expected to be applied. General principles on which wage scales are based hinge on piecework. Before fixed scales had been set, no certain pay by the hour was guaranteed.

At present, a day's pay is based upon the wage scale for the job and represents an "advance on agreement" against the amount the worker will earn on the job. Piecework rates are such that a man should exceed the day wage by 75%.

Since the war, Norwegians have received a cost-of-living raise but this is paid independently of the piecework rates—which, in most cases, have not been increased since the war.

This combination of piecework and day-work has its advantages for the employer when worker speed is high, but is a disadvantage when it is low. As cost-of-living increases are granted, there will be less differences between the two, and it is feared that speed of construction may suffer.

### Sweden and Denmark

In Sweden, practically all wages are based on a piecework system. The system is so intricate that in the building trades a price has to be fixed for each item of work individually. Even though bargaining is on an industry-wide basis, work rates vary by locality.

Not only is fixing of rates a detailed operation, but also checking up on the work done requires a great number of inspectors. But it gets the work done and Swedes work fast—with some of the workers earning a lot of money.

Construction in Denmark generally is based on piecework rates fixed by agreement between the Employers' Association and the trade unions. Piecework rates are based upon a high standard of quality so that work is done at a favorable speed combined with good workmanship.

## PILE FOUNDATIONS

**Theory—Design—Practices.** Provides the information required for the design, driving, and maintenance of pile foundations. Covers the relations between borings and soil mechanics and pile foundations; most effective methods of determining pile capacities from driving resistance and friction values; selection of driving rigs; factors affecting choice of pile types, etc. Gives over fifty actual cases of pile foundation failures, with causes and remedies. **Robert D. Chellis, Structural Engr., Stone & Webster Corp.** 640 pages, 225 illus., over 100 tables. \$12.50

## SOIL MECHANICS, FOUNDATIONS, AND EARTH STRUCTURES

Covers the theory of soil mechanics, together with the principles and practices of designing and constructing foundations and earth structures indicating the important relationship of these 3 subjects. Emphasizes experimental data and field observation, giving numerous examples of both successful and unsuccessful structures. Covers the estimation of the shearing strength of soils, lateral earth pressures, the effects of plastic flow, sensitivity of various clays to remoulding, etc. **By Gregory P. Tchebotaroff, Prof. of Civ. Engr'g., Princeton Univ.** 655 pages, over 400 illus., \$7.50

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This new edition of a widely-used book shows clearly and step-by-step how to write the kind of technical reports that are clear, easy to read, and that win acceptance for your ideas. Tells you how to analyze the type of report, how to choose the best form and style, how to organize the material, and how to use figures, tables, and annotations. **By I. Raleigh Nelson, Prof. Emeritus of English in the Coll. of Engrs. Univ. of Mich.** 356 pp., \$4.50



## LEGAL GUIDE for CONTRACTORS, ARCHITECTS, and ENGINEERS

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Out!

A handy legal guide to forewarn you of common pitfalls in your field... help for preventing costly lawsuits. Describes 80 situations reviewing typical problems arising out of construction contracts. Easily understood by the layman. It gives facts and contract provisions in each situation, and cites cases to sustain the principles of law set forth. **By I. Vernon Werbin, Member of N. Y. Bar and Lie, Prof. Engr.** 374 pp., \$4.75

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## CONVEYOR BELT

gives you everything you want . . .

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ing time saved on every cycle gains 5.3 minutes more productive haul-time . . . adds 9% to hourly yardage output.

This is typical of Koehring Dumptor's basic principle . . . to reduce all non-productive time to the absolute minimum . . . and to increase work-time for more yards per hour, more profit per yard for you. Dumptor has many other cost-cutting advantages worth checking . . . see your Koehring distributor.

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Layered steel-oak-steel bottom, rib-reinforced body, heavily-trussed main frame provide ample Dumptor strength to stand up to severe loading shocks



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Koehring constant-mesh transmission gives Dumptor the same 3 fast speeds forward and reverse, eliminates slow turns at the loading unit, on narrow haul roads, and at dumping location.



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With 30 digging feeds, Parsons 250 Trenchliner produces up to 93/4 feet of clean-cut trench per min. . . digs 16" to 42" wide, up to 12 1/2 feet deep . . . cuts within 11" of either side. Reversible spoil conveyor shifts through machine by power in less than 1 min. to dump right or left. Constant discharge height speeds loading into trucks. Larger and smaller models are also available . . . contact your Parsons distributor now.

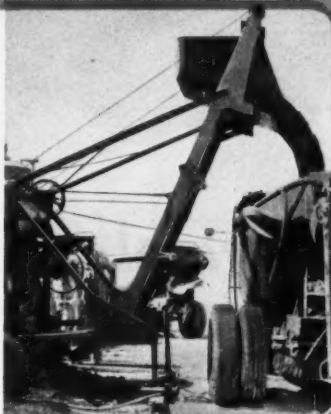
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This Kwik-Mix Tower Loader fits 11-S and 16-S Dandie® concrete mixers, discharges at 9'-1" into trucks, overhead hoppers, or stockpiles. Bucket holds full batch, is powered by mixer engine and dumps automatically at top of tower. Also available for Kwik-Mix No. 10 and 14 bituminous mixers. Get complete information from your Kwik-Mix distributor, or send for literature on low-cost, time-saving Tower Loader today.

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Hundreds of contractors and public works departments own Model HM "PAYLOADERS" . . . a large percentage have placed repeat orders proving their satisfaction with the traction, flotation and all-around utility of this unusual wheeled tractor shovel. They also value its ability to get to the job fast under its own power . . . the way it can do so many jobs — dig, load big hauling units, bulldoze, spread, back-fill, carry, lift, lower, pull and push.

Operators like its ease of operation, thanks to power-assisted steering, fingertip hydraulic control, the quick, easy shift between the four forward speeds and four reverse speeds. Once you see the Model HM "PAYLOADER" in action you'll want one too, so see your "PAYLOADER" Distributor or write The Frank G. Hough Co., 706 Sunnyside Avenue, Libertyville, Illinois.



WRITE for catalog on the 1½ yd. Model HM or the six other "PAYLOADER" sizes down to 12 cu. ft. bucket capacity.



# **PAYLOADER®**



## Legal Decisions Concerning Construction

### All in the Same Town

IF A AGREES to give a contractor a check for a certain amount and, before the check is given, the bank on which it is to be drawn unconditionally promises in writing to accept the check, this is an actual acceptance in favor of every person who receives the check for value upon the faith of the promise.

Suppose, however, that A agrees to give a check for a certain amount on a bank, the bank unconditionally agrees to accept the check for that amount, but when the check is presented it calls for the agreed amount "with exchange."

Is the bank bound by its acceptance?

On this point the Missouri Courts have ruled that the bank is not bound, and the Iowa Courts have arrived at the same conclusion in a case where an Iowa bank wired a party in California that the bank would pay a \$2,000 draft and the draft, when presented, called for \$2,000, "with exchange on New York."

Suppose, however, that the check is dated and payable in the same town.

Does the addition of "exchange" invalidate the acceptance in this case?

On this point the Federal Courts have ruled that the words "with exchange" may be rejected, and that the bank is bound by its acceptance.

One case bearing on these points of law is *North Atchison vs Garretson* reported in 51 Fed. 168.

### A Nevada Lien

THE CONTRACTOR, who was also a stockholder in a Nevada bank, needed money, and, quite naturally, applied to his own bank for a loan.

"You hold ten shares of stock in the United Mercantile Corporation," the bank suggested, and the contractor admitted the charge.

"Then, if you'll hand over that stock as collateral security, you can have the loan," the bank agreed.

This arrangement was duly carried out, the contractor failed to pay the loan, the collateral stock

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reduce binding; the fast-cutting chains slice through 18" oak in less than 16 seconds. The DA-211 and its lightweight counterpart, the smaller DO-101, make perfect working partners. The DO-101 is ideal for one-man operation, and can be converted quickly into a lightweight two-man unit with rail lengths up to 40'.

You will find a complete line of Disston power saws at dealers the country over. Any of these men will be glad to demonstrate how a Disston does it faster... better. For the name of the one nearest you, write HENRY DISSTON & SONS, INC., 2-J Tacony, Philadelphia 35, Pa.

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## The tractor that burned like a blowtorch

(A true story, based on Hartford File #74651)

Our business is clearing land, so tractors are our bread and butter. We use five. One, fitted with angle dozer and power unit, had just been overhauled. It was insured for \$16,000. Our driver, an experienced man, was pushing his job at a steady pace when *whoosh*—the whole machine flashed into a blaze.

It came so fast he was burned about the face before he could jump from the seat. He emptied his fire extinguisher at the flames, but in a minute or so came *whoosh No. 2*.

Our adjustor reconstructed what

happened. The first flash, he figured, came from gasoline leaking from the starter tank and dripping on to the hot manifold.

The second blaze came when the tank of diesel fuel split in the heat and spilled 85 gallons under the tractor. It burned like a blowtorch, and melted all the small parts off of the machine.

Repairs came to \$11,706. That was the amount we were paid by the Hartford Fire Insurance Company under our Contractors' Equipment policy.

Contractors' equipment, even the heaviest, can be damaged in many unexpected ways. A Contractors' Equipment policy protects you against fire, collision, theft, windstorm, landslide and other specific hazards. And protects equipment in transit, in storage and in use.

Ask your Hartford Fire Insurance Agent, or your insurance broker, to quote rates and outline the actual, detailed protection offered you in a Contractors' Equipment policy. You'll be surprised by the broadness of its coverage and its reasonable cost.

Year in and year out you'll do well with the

# Hartford



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### LEGAL DECISIONS . . . (Continued)

proved to be worthless, and the bank attempted to hold the contractor's bank stock under a by-law giving the bank a lien on its own stock for debts owing to the bank.

"When you demanded and took the other stock as collateral security for the loan, you thereby waived your lien on my bank stock," the contractor contended.

"The circumstances that the bank did not at an earlier date assert its lien, will not defeat it, nor did the bank by taking the other security, waive its lien," said the United States Circuit Court of Appeals in *Wright vs Washoe County Bank*, 251 Fed. 819.

### Overdrafts and Loans

"OVERDRAFTS are strictly prohibited by order of the board of directors," a bank announces, and the rule is both safe and salutary.

Suppose, however, that a bank does allow a contractor to overdraw his account. What is the relation between the bank and the contractor as far as the amount of the overdraft is concerned?

On this point the courts have ruled that the overdraft is to be treated as a loan to the contractor, repayable on demand.

"An overdraft allowed is a loan due on demand, and may be sued for as such," says the United States Circuit Court of Appeals in *Hennessey Bros. & Evans Co. vs Memphis N. Bank* reported in 129 Fed. 557.

### Cash and Credit

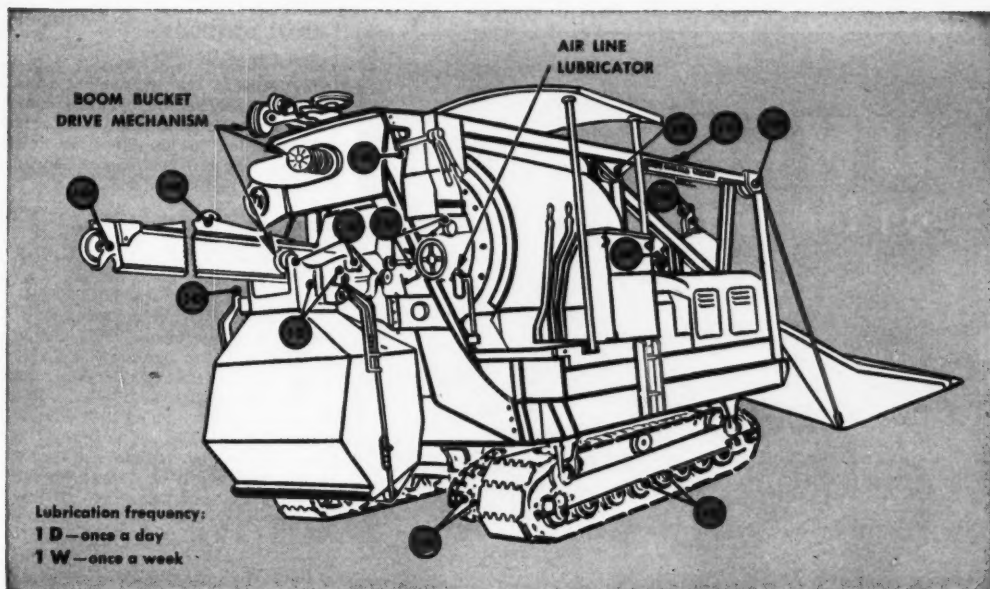
IF AN OWNER gives a contractor a check on the C bank, the contractor must present the check for payment at the bank on which it is drawn. If, however, the contractor presents the check at the bank, and says, "I demand payment of this check in cash," and the paying teller says, "no funds," or words to that effect, the contractor has a right of action against the owner on the dishonored check.

Suppose, however, that the contractor does not demand the cash, but requests the bank to place the check to his credit, which the bank refuses to do. Is this a sufficient presentment?

"You should have presented the check and demanded the coin," the owner contends.

"If the bank wouldn't place it to my credit, they wouldn't pay the cash, and the refusal to credit it to

(Continued on page 140)



**WHERE AND WHEN TO LUBRICATE.** Shown above is just one of hundreds of drawings and photos in Cities Service's new EARTH MOVING AND CONSTRUCTION MACHINERY LUBRICATION BOOK. Individual elements of the machine are shown in detail in book.

## THERE ARE OVER 20 WEEKLY OR DAILY LUBRICATING POINTS ON CONCRETE MIXER-PAVER

Whether you're the head of a construction outfit, or the operator of a single piece of equipment... knowing when, where and with what to lubricate is unquestionably one of your most important functions.

This information, complete with drawings, photos and lubrication charts, is all contained in Cities Service's EARTH MOVING AND CONSTRUCTION MACHINERY LUBRICATION BOOK.

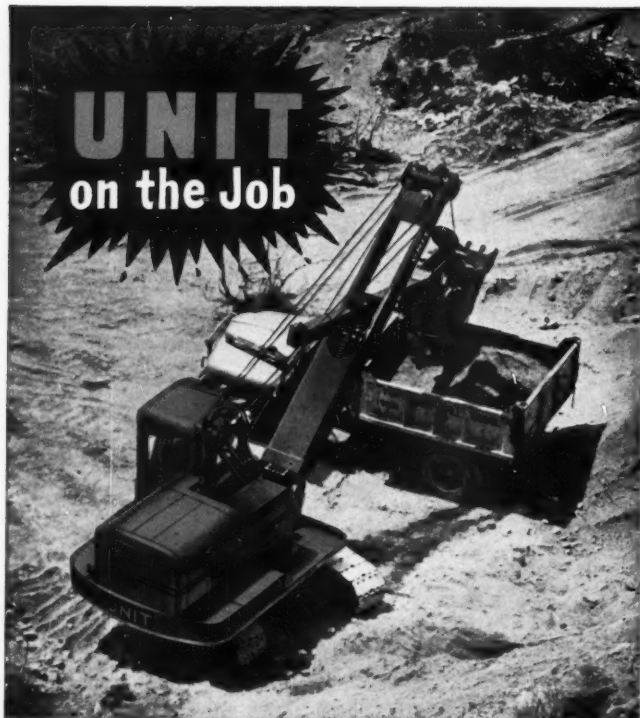
This 56 page book outlines the safest, most complete lubrication maintenance procedures for just about every piece of machinery you might use. It was produced for you, as a service to you by the Cities Service Company... producers, refiners and marketers of the most complete line of the finest petroleum products. For your copy, write: Cities Service Oil Company, Dept. J39, Sixty Wall Tower, New York City 5.



**FREE:** Write Cities Service today for the new EARTH MOVING AND CONSTRUCTION MACHINERY LUBRICATION BOOK.

**CITIES SERVICE**  
QUALITY PETROLEUM PRODUCTS

# UNIT on the Job



## SWING SPEED makes PAY LOADS!

Here's a UNIT 1/2 Yard Shovel doing a PRODUCTION DIGGING JOB in a gravel pit. UNIT owners like the ease of operation and the FULL VISION CAB for complete visibility. They also like the sturdy construction and the many mechanical features, plus the ECONOMICAL PERFORMANCE and LOW UP-KEEP which all add up to EARNING POWER. Why not investigate what UNIT can do for you — on YOUR next excavating and material handling job?

**SEE FOR YOURSELF:** *Let us send you our novel TV Brochure. It illustrates the complete UNIT line.*

**UNIT CRANE & SHOVEL CORPORATION**  
6305 WEST BURNHAM STREET • MILWAUKEE 14, WISCONSIN, U.S.A.



**1/2 or 3/4 YARD EXCAVATORS...CRANES UP TO 20 TONS CAPACITY  
CRAWLER OR MOBILE MODELS . . . GASOLINE OR DIESEL**



**All Models Convertible to ALL Attachments!**

## LEGAL DECISIONS . . .

*Cont. from p. 138*

my account was equivalent to a general refusal to pay," the contractor maintains, and the Courts have ruled in his favor on this point. One case is *Gregg vs George* reported in 16 Kan. 546.

## The California Cashier

A CALIFORNIA CONTRACTOR owed a California bank, the loan was overdue, the bank held collateral security for the account, according to the terms of the pledge agreement, the bank was authorized to sell the stock, and the cashier sold it to A.

"The sale is invalid, as the cashier as such, had no authority to sell the stock without an order from the board of directors," the contractor averred.

"According to our by-law the cashier is authorized 'to do whatever is necessary in the management of the business of the bank,' and that is broad enough to cover a sale of defaulted collateral," the bank contended.

"The sale was part of the ordinary business of the bank," said the California Supreme Court in ruling that the sale was binding in the case of *McBoyle vs Union N. Bank* reported in 122 Pdc. 458.

## The Notarial President

"PROTEST THE ENCLOSED CHECK, if not paid, and notify the endorsers," the Nebraska contractor wrote, the check was dishonored, the cashier handed the check to the bank president, who was also a notary public, for protest, the president went fishing, forgot to protest the check, the endorsers were released from liability, the contractor could not collect the check—and sued the bank for damages.

"A notary public is a public officer, and when a bank uses due care in selecting a notary, the bank is not liable for his negligence," the bank contended.

"I admit that that is the general rule, but you were responsible for the acts of your own officers, and when your president failed to protest the check the mere fact that he was a public officer did not prevent him from also being an officer of the bank," the contractor maintained, and the Nebraska Supreme Court in *Woodrider Bank vs First N. Bank* ruled in his favor, although there is a Georgia ruling in favor of the bank.



Type 11-B McKiernan-Terry Pile Hammer driving steel piles for ship launching ways along the Gulf Coast. →

Driving timber piles under an existing bridge with a Type 9-B-3 McKiernan-Terry Hammer. ↓



"Our McKiernan-Terry Hammers have consistently made money for us"

The Spence & Howe Construction Company of Port Arthur, Texas, is one of thousands of contractors who have profited by using powerful, fast-acting McKiernan-Terry Pile Hammers. President O. B. Hartzog reports:

*"Our two McKiernan-Terry Pile Hammers have always performed beyond expectations and with a minimum of maintenance. They have consistently made money for us, particularly on jobs involving*

*batter piles and difficult places to maneuver heavy pile driving equipment, such as under existing bridge spans, inside of buildings and close to existing refinery units."*

On tough or easy jobs, contractors have discovered that McKiernan-Terry equipment more than pays its way. Get the facts on the wide-range McKiernan-Terry line including 16 sizes of hammers and 2 sizes of extractors. Write for bulletin.

### Other McKiernan-Terry Products



**MEAD-MORRISON COAL AND ORE UNLOADERS AND BRIDGES**

Available in a variety of designs and in capacities of 300 to 1500 tons per hour. Exceptional durability proven by installations in service for half a century. Simple controls afford convenient, comfortable and speedy operation.



**GRAB BUCKETS**

Range of types and sizes take bulk materials loads up to 25 tons. Ruggedness without excess weight.



**HONING UP TO**

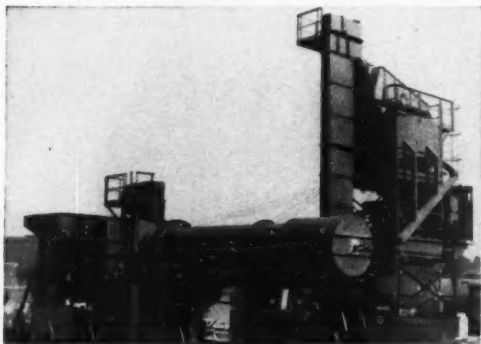
42-IN. I.D. X 55-FT. LONG  
Typical of the extensive facilities of McKiernan-Terry for unusual jobs.



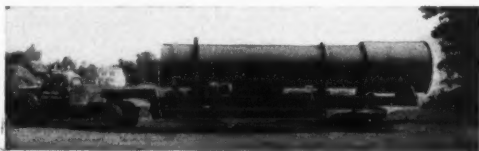
**McKIERNAN-TERRY CORPORATION • MANUFACTURING ENGINEERS • 14 PARK ROW, NEW YORK 38, N. Y.**  
Plants: Harrison, N. J. and Dover, N. J.

ME 327

# CUMMER Builds Fast-Producing Asphalt Plants to Help YOU Build Better Roads... Profitably



Here's proof that Cumer Plants are portable. The Blue Ridge Asphalt Paving Co.'s big plant pictured above was transported from Cleveland to Virginia by truck. In the picture below the Cumer dryer for this plant is on its way through the Blue Ridge Mountains.



Cumer Portable Asphalt Plants lead the field in high, continuous production at low operating cost. The result is greater efficiency, more profit for you.

Designed for easy transportation, Cumer Portable Asphalt Plants can be completely assembled in as few as 12 hours. Minimum "down time" means an additional saving.

There are no chains or drive belts in improved Cumer Plants. All moving parts are individually motor-driven.

Cumer Portable Asphalt Plants are ruggedly constructed and sensibly designed as complete power units with vibrating screen, mixer, dust elevator, enclosed cold elevator, cold storage bin and feeder.

Now available in sizes from 60 to 100 tons capacity per hour, Cumer Portable Plants are fired with gas or oil burners. They can be powered with Diesel engines. Axles and pneumatics are furnished as optional extras.

A descriptive Cumer Catalog is yours on request. Write for it today.

## THE F. D. CUMMER & SON COMPANY

Pioneer Builders of Fine Asphalt Plants  
CLEVELAND 14, OHIO

**"Our Pouring Schedule  
SPEEDED 30 DAYS  
with 'TROUBLE SAVER'® Shoring"**  
... says one contractor!

### Other Users of "TROUBLE SAVER" Shoring say:

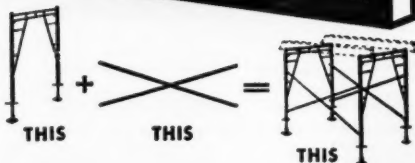
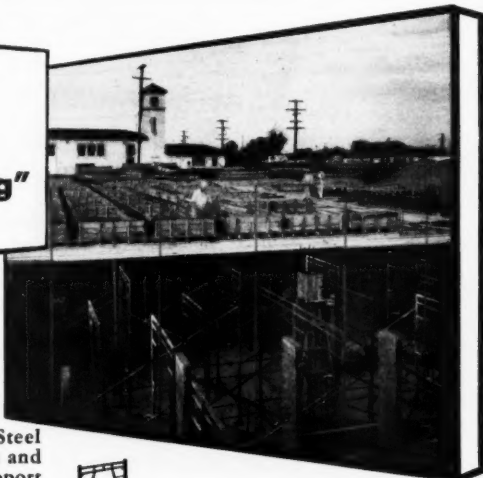
"Our records show that on one job we saved \$1,700 by using your Shoring."

"Your Sectional Shoring has saved me more money than any other subcontract."

"Our decking and stripping costs are reduced considerably."

Rapidly erected "TROUBLE SAVER" Sectional Steel Shoring permits neat, planned installations. Loads and stresses can be figured accurately for efficient, safe support of working loads up to 366 lbs./sq. ft.

Write today for Bulletin PSS-28 showing how this modern, prefabricated steel Shoring method can cut your construction costs.



End Frames 5' wide and from 3' to 10' high, scientifically designed and fully coped and welded... plus... Diagonal Braces, for desired spacing, make the Basic Unit—strong, rigid and quickly adjustable to height.

For Greater Safety...Efficiency...Economy

THE PATENT SCAFFOLDING CO., Inc.

28-21 12th Street Dept. CM&E, Long Island City 1, N. Y.  
West Coast Plant: 6931 Stanford Ave., Los Angeles 1, Calif.

*You can tell by the* **PERFORMANCE..**



*sure they're* **Eucs!**

Wherever they're put to work, "Eucs" do the kind of a job that makes them the preferred equipment for moving earth, ore, rock and coal in off-the-highway service.

Big payloads, fast travel speeds and high job availability add up to more loads per hour and more profit per load. Whatever the job . . . building highways, dams, levees, airports . . . working in mines, quarries or on industrial projects, you can depend on "Eucs" for low cost hauling.

If you own "Eucs" you're already benefiting from their production and profit advantages. If you know them only by reputation, we suggest you get performance facts and figures from your Euclid distributor.



Euclid Scraper—15.5 cu. yds. struck, 21 cu. yds. heaped at 1:1 slope... 275 h.p. engine... top speed, loaded, 28.2 m.p.h.

Bottom-Dump Euclids—13 to 25 cu. yds. . . 190 to 300 h.p. . . top speeds loaded to 34.4 m.p.h.

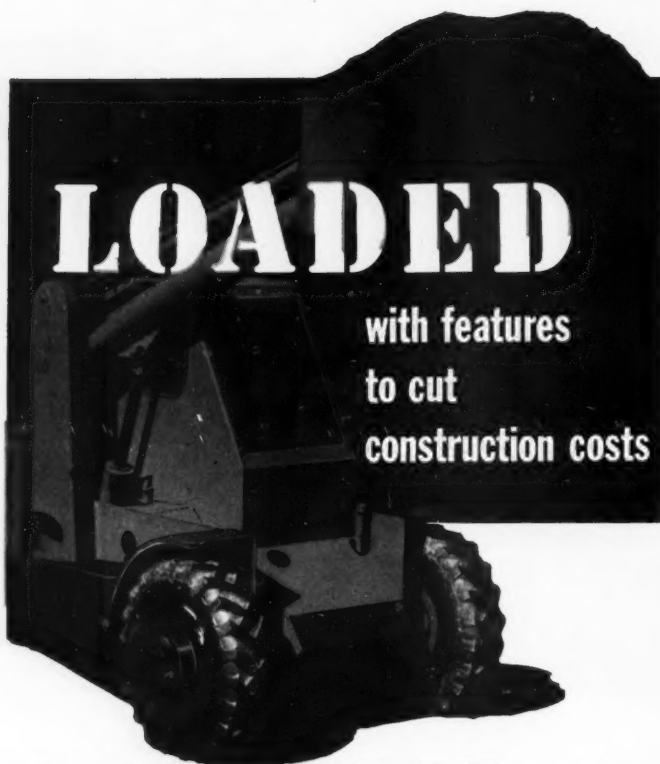
Rear-Dump "Eucs"—10 to 34 tons . . 125 to 400 h.p. . . spring mounted or semi-rigid drive axles . . top speeds loaded to 36.3 m.p.h.

**The EUCLID ROAD MACHINERY Co., CLEVELAND 17, OHIO**

CABLE ADDRESS: YUKLID

CODE: BENTLEY





# LOADED

with features  
to cut  
construction costs

## SCOOPMOBILE model H FULL HYDRAULIC FRONT-END LOADER

Handle more loads per hour... and a heaping bucketful every time... with the all-hydraulic SCOOPMOBILE engineered to cut costs and accidents on every construction job.

Bucket on powerful hydraulic arm scoops a smooth arc and automatically levels for fast cycle lift to dumping position. Tricycle chassis and power steering give maximum maneuverability. Operator in clear-vision safety cab directs every operation with finger-tip controls.

Years-ahead design and rugged construction give long life and heavy-duty service.

It dozes... scoops... transports... backfills... loads all types of bulk materials.

- Standard  $\frac{3}{4}$  cu. yd. bucket scoops chassis-width track.
- Rated lifting capacity, 4,000 lbs.; standard discharge height to 8 ft.
- Heavy duty industrial engine and planetary drive axle with 3 to 1 reduction ratio gives ample reserve power.
- Can be driven at speeds to 20 m.p.h. and towed from one job to the next.
- Quick-change attachments include: Swivel type concrete hopper. Lift forks.

EXTRA-LOW IN INITIAL COST... EXTRA-HIGH IN EFFICIENCY

Write for literature and name of your nearest SCOOPMOBILE dealer

### MIXERMOBILE DISTRIBUTORS

MIXERMOBILE • SCOOPMOBILE • LIFT TRUCKS • TOWERMOBILE  
STATIONARY MIXERS • DUO-WAY SCOOP • TELESCOPIC LIFT • STATIONARY TOWER

Box 7527 • Portland 20, Oregon

## SALES AND ★ SERVICE ★

News of manufacturers' activities designed to assist the reader in the purchase of machinery, equipment and materials and help him obtain quick service on parts and maintenance.

### Distributor Appointments

**The Patent Scaffolding Co., Inc.:** Has appointed the Arnold Co., 3255 Fairfield Ave., Bridgeport, Conn., as a representative for the rental and sale of "Trouble Saver" sectional steel scaffolding, aluminum scaffolds and "Gold Medal" Junior swinging scaffolds.

**Cleco Div., Reed Roller Bit Co.:** Announces the appointment of Harry P. Leu, Inc., Orlando, Fla., and Ace Equipment and Supply Co., Inc., 436 Irving Ave., Hillside, Ill., as distributors for Cleco products in their areas.

**W. A. Riddell Corp.:** The Municipal Machinery Co., Coram, N. Y., has been named sales and service agency in the Long Island area for WARCO motor graders.

**Bucyrus-Erie Co.:** The appointment of Brown-Bevis-Industrial Equipment Co., 4441 Santa Fe Ave., Los Angeles, Calif., as distributor for Bucyrus-Erie tractor equipment was announced recently.

**Syntron Co.:** The Syntron Newark Sales Co.—representing and selling the entire line of Syntron vibratory material handling equipment, Selenium rectifiers, shaft seals, paper joggers, heating elements, etc.—have opened a new headquarters in Hasbrouck Heights, N. J.

### On the Sales Front

**Lull Mfg. Co.:** Charles Strauch, formerly advertising manager, has been appointed to the newly created position of sales promotion manager.

**Pyramid Steel Co.:** R. B. Chessin, who was formerly assistant sales manager of Allied Steel Products Co., recently joined Pyramid Steel as a sales executive.

**The General Tire & Rubber Co.:** Robert Moran has been named manager, special purpose tire department; David G. Gehring will take over replacement sales in industrial tires, formerly handled by Mr. Moran.

**Allis-Chalmers Mfg. Co.:** Appointment of George A. Gillespie as resident manager of the Paris, France, office for the Tractor Division was

(Continued on page 148)





## You'll find them in the best quarries — GARDNER-DENVER

### Portables

Dependable in any weather—at high altitudes as well as low—because of their two-stage design and their completely water-cooled compressor cylinders.

### Wagon Drills

For spotting and drilling holes at a fast pace—thanks to their high maneuverability—their powerful drilling, rotation and blowing, all under finger-tip control.

### Sinkers

For sinking blast holes or blast holes in any kind of rock—there's a size and weight that's right for fast, efficient drilling in any type of ground.

Send today for bulletins on Gardner-Denver quarry equipment.

Since 1859

## GARDNER-DENVER

Gardner-Denver Company, Quincy, Illinois

In Canada: Gardner-Denver Company (Canada), Ltd., Toronto, Ontario

THE QUALITY LEADER

IN COMPRESSORS, PUMPS AND ROCK DRILLS



# More **PUSH** from



GAR WOOD offers a complete line of 12 new hydraulic and cable TipDozers and Dozecastors — perfectly matched to the new A-C tractors! TipDozers have tip screw for simple vertical blade adjustment of either end of moldboard, up to 12" max. differential. On Dozecastors angle of moldboard can be changed up to 25° in either direction. All Dozecastors also have tipping feature.

**GAR WOOD**  
**GW**  
TRADE MARK  
**INDUSTRIES**

# Your Power

## SPECIFY

# GarWood

## ON YOUR A-C TRACTOR

Take your choice of hydraulic or cable operation, **GAR WOOD** makes them both! Each is designed to help you get maximum possible performance from your A-C tractor — with features that give you the advantage in setting new production records . . . You'll find greatly improved visibility, better balance, exceptionally sturdy construction and increased working capacity — all add up to more profit dollars.

The compact "package" type hydraulic control unit or the planetary cable control unit are simple to adjust and easy to maintain — give exceptionally accurate control to your cuts . . . Tipping feature makes accurate grading easy with your dozer . . . Whether you choose hydraulic or cable operation you'll be sure to get a cost cutting combination when you specify **GAR WOOD!**

## GAR WOOD INDUSTRIES, INC.

FINDLAY DIVISION • EXECUTIVE OFFICES • WAYNE, MICHIGAN

Construction Equipment: Excavators, Scrapers, Dozers, Ditchers, Spreaders, Finegraders, Truck-mounted Road Graders. Truck Equipment: Dump Truck Bodies & Hoists, Winches & Cranes, Refuse Collection Bodies, Elevating End Gates.

MO. 525

## OTHER

# GarWood

## EQUIPMENT



- **GAR WOOD SCRAPERS**—A complete line of tractor drawn scrapers for accurate, high-speed earthmoving.



- **GAR WOOD EXCAVATORS**—New 3/4 yd. crane-shovels, crawler and truck-mounted; all operating conversions.



- **BUCKEYE DITCHERS**—A complete line of wheel and ladder-type ditchers. Also Finegraders and Spreaders.



## CLEVELANDS are Profit Producers

**They have a 30-year record of delivering  
more trench...in more places...at less cost**

You can depend on CLEVELANDS for steady production because they're built tough. They're compact and maneuverable, with a wide range of trench sizes and digging speeds. You *profit more* because you *do more at less cost* with CLEVELANDS!



Tough frost and tight quarters were profitably overcome by this CLEVELAND.



100% machine digging on this house service with a compact, maneuverable CLEVELAND.

### THE CLEVELAND 80 WITH JUST 1 MAN DOES 3 BIG TRENCH-COMPLETION JOBS



...lays pipe...



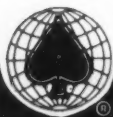
...fills trench...tamps fill...

The CLEVELAND 80 saves you time, work and money on all your trench completion jobs. It fills, tamps and travels simultaneously, handles pipe, does all types of side crane work. Backfills from either side of trench, tamps from side or straddling trench—fast, clean, smooth.



...and does a thorough clean-up job.

Get the full CLEVELAND Story  
from Your Local Distributor



Pioneer of the Modern Trencher  
**THE CLEVELAND TRENCHER CO.**  
20100 ST. CLAIR AVENUE • CLEVELAND 17, OHIO

#### SALES AND SERVICE...

Continued from page 144

announced recently. In this capacity he will supervise sales of the company's products throughout continental Europe.

**Acrow, Inc.:** Announces the appointment of two new vice-presidents—John J. Edmunds of Acrow, New Jersey, Inc., and Edgar F. Copenhaver, Acrow, California, Inc.

**Pittsburgh Corning Corp.:** Has appointed J. R. Nicholson manager of Glass Block Sales.

**Aluminum Industries, Inc.:** Russell J. Pellman, former technical representative of the paint and varnish division, has been promoted to the position of sales engineer, supervising sales of Permite concrete curing compounds.

**Hyster Co.:** Appointment of John Pearson as district representative has been announced. He will be working in the field out of the Peoria office.

**Crucible Steel Co. of America:** Has appointed Clayton K. Baer as service engineer in the tool steel sales division. In his new position, Mr. Baer is engaged in field work relating to applications of Crucible tool steel products, and liaison between customers and the research and production departments at the mill.

**Gustin-Bacon Mfg. Co.:** Named Edward A. McCabe as manager of its New York division. Mr. McCabe will be in charge of all glass fiber insulation, industrial and railroad division sales in New England, New York, New Jersey, Pennsylvania and Delaware.

**Lone Star Cement Corp.:** Announces the appointment of Curtis Jernigan as assistant manager, "Incor" and Technical Service, in the company's New York office. Mr. Jernigan was formerly assistant director of research, Lone Star Research Laboratory, Hudson, N. Y.

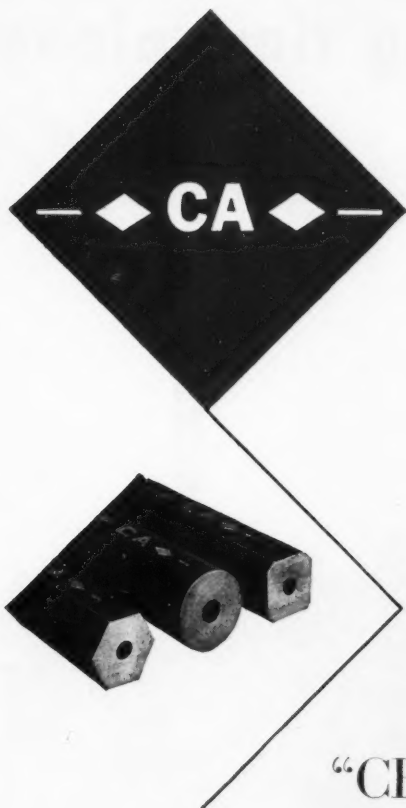
**Le Roi Co.:** N. M. Sedgwick has been named general sales manager of the Construction and Mining Division; R. H. Rodolf was made manager of Rock Drill Sales, C. L. Meigs, assistant general sales manager of the Construction and Mining Division, and William D. Lund, assistant to the general sales manager of the Construction and Mining Division.

**Harnischfeger Corp.:** B. Pratte, a veteran of nearly twenty years with the company, has been appointed general sales manager.

**Davey Compressor Co.:** Appointment of George E. Jennings as west coast district manager has been announced. Mr. Jennings will be in

(Continued on page 152)





# NEW

## CRUCIBLE DOUBLE DIAMOND

takes drill steel  
out of the  
"CROWBAR CLASS"

At last! A drill steel that's not in the "crowbar class" . . . because Crucible's new DOUBLE DIAMOND hollow drill steel is a *tool steel* . . . made by drill steel specialists to tool steel specifications. Its greater fatigue strength means lower cost per foot drilled . . . and saves those *valuable carbide bits*.

Find out first hand about this step forward in drill steel — find out how Crucible DOUBLE DIAMOND in your drilling operation does a better job . . . faster! Write for full details. Do it now!

this Alloy  
Hollow Drill Steel  
has greater  
fatigue strength . . .  
cuts bit losses . . .  
lasts longer

**CRUCIBLE**

first name in special purpose steels

52 years of *Fine* steelmaking

**HOLLOW DRILL STEEL**

CRUCIBLE STEEL COMPANY OF AMERICA, GENERAL SALES OFFICES, OLIVER BUILDING, PITTSBURGH, PA.  
 REX HIGH SPEED • TOOL • RESISTAL STAINLESS • ALLOY • MACHINERY • SPECIAL PURPOSE STEELS

**On saved shifting time alone**

***YOU CAN GAIN UP TO 25***



***THE NEWEST, FINEST  
LINE ON EARTH!***

**HD-5**

40 drawbar hp.,  
11,250 lb.

**HD-9**

72 drawbar hp.,  
18,800 lb.

**HD-15**

109 drawbar hp.,  
27,850 lb.

**HD-20**

Hydraulic Torque  
Converter Drive, 175 net  
engine hp., 41,000 lb.

# PERCENT MORE PRODUCTION

## WITH THE MODERN SHIFT PATTERN ON ALLIS-CHALMERS HD-9 AND HD-15 TRACTORS

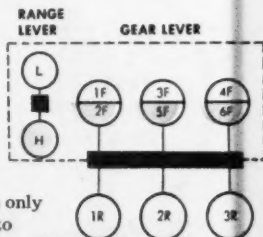
It takes just half the time and effort to change from low forward to fast reverse with the Allis-Chalmers HD-9 and HD-15 transmission. This shifting time saved becomes production time gained on bulldozing and other jobs calling for a short forward-backward cycle. For example, job studies prove that on backfilling, pusher work, working around large excavators, digging and loading with front-end shovels—other jobs where frequent shifts are required—you can make five passes in the time usually required to make four...actually increase production up to 25 percent.

### Here's how it works

You go from any forward to any reverse speed with one simple shift of the gear lever. The only time you touch the range lever is to select the forward range you want for the job to be done—just set it and forget it.

The constant-mesh Allis-Chalmers transmission makes shifting smooth and effortless...without gear clashing. And it's so easy that the operator can *always* take advantage of high-speed reverse.

This exclusive shift pattern, together with all-steel welded construction, unit assembly, 1,000-hour lubrication, are just a few of the reasons you get more work done with the new *designed-for-your-job* Allis-Chalmers tractors.



**ALLIS-CHALMERS**  
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.



## HELTZEL HELPS CONSTRUCTION DOLLARS GO FURTHER



### HELTZEL ON THE JOB ON THE PENNSYLVANIA TURNPIKE

Where new records  
were made and broken



**PROBLEM:** To select batching equipment of speed, accuracy and ultra portability to put paving operations on a much faster schedule than ever attained.

**ANSWER:** After charging as high as 140 batches per hour on an airport project this batching operation was moved to the Pennsylvania Turnpike where this high production was maintained.

Heltzel Type One for aggregates and Type E-2 for bulk cement were set in line for continuous truck drive-through. Using dual batchers, 2-batch trucks were loaded in one stop and 3 and 4-batch trucks in only two stops.

**Type One**—Capacities: 52, 72, 85 and 100 tons; used with 1 1/4-cu. yd. Universal Batchers or 2 1/2-cu. yd. Dual Batchers.

**Type E-1\***—Capacities: 100 and 200 bbls.

**Type E-2\***—Capacities: 300 and 400 bbls.

\*Used with 14-cu. ft. Dustless and 28-cu. ft. Dual Dustless Batchers.

Capacities may be increased with hopper extensions and recirculating tanks.



The Heltzel Steel Form & Iron Company

Construction Equipment Since 1910



WARREN, OHIO

### SALES AND SERVICE...

Continued from page 148

charge of company operations in California, Oregon, Washington, the cities of Reno and Carson City, Nevada; Yukon Territory, Alaska and the Province of British Columbia, Canada. His headquarters will be in San Francisco.

**Hell Co.:** Special sales representative is the job assigned to Joseph F. Hell, Jr., in the expanded sales program recently launched by this company. He will report directly to John Barclay, general sales manager.

**Universal Concrete Pipe Co.:** Has announced the appointment of Henry W. Gabbe as sales representative at its new Jessups, Md., plant. He will handle engineering design and sales of Universal's complete line of manufactured concrete products.

**Goodyear Tire & Rubber Co.:** Announcement has been made of the appointment of J. L. Reid as district manager of the company's mechanical goods sales at Salt Lake City, replacing W. T. Roberts who retired in July after 32 years' service with the rubber firm.

**Richmond Div., Gar Wood Industries, Inc.:** F. Eugene Englander has been appointed sales manager and will direct all sales activities for the products manufactured and sold by this division, including hoists and dump bodies, side-dump rock bodies, Hi-Lift loaders, winches, pole derricks, truck cranes and Loadpacker refuse collectors.

**Thermoid Co.:** Lester J. Hyland, associated with the company for more than 25 yr., has been appointed sales manager of the industrial rubber division. Succeeding Mr. Hyland as western division manager is Robert Gentles.

**Sterling Div., White Motor Co.:** Has named Lee E. Copple sales manager of the Construction and Mining Equipment Dept.

**Raybestos - Manhattan, Inc.:** Has opened a new warehouse at 4500 York St., Denver, Colo. Elton T. Fair, Jr., sales representative for the territory, is in charge of the new warehouse.

**Crucible Steel Co. of America:** Edward B. Blanc has been appointed sales engineer for the Drill Steel Division. He will make his headquarters at Park Works, Pittsburgh.

**Lull Mfg. Co.:** David Hansen has joined this company in the capacity of assistant sales manager.

**A. O. Smith Corp.:** Has appointed J. H. Brinker assistant executive in charge of distribution in Milwaukee. (Continued on page 156)



**FIGURE**  
**BIGGER PROFITS**  
**INTO YOUR YARDAGE SCHEDULE**  
**SPECIFY Firestone TIRES**  
**WHEN YOU BUY NEW EQUIPMENT OR**  
**REPLACEMENT TIRES**

**S**PECIFYING the right tire for the job is one way of making sure you make more profit with your equipment. Regardless of road, load or condition of service, there's a Firestone Tire especially designed to meet your particular requirement . . . a tire that will help cut your operating costs.

It costs less to run on Firestone Tires because of the extras built into them. The treads are made of extra tough, cut-resistant tread stock. Extra skid depth gives greater traction. The extra thick cut-resistant sidewalls give extra protection against projection cuts and snags. The extra strong body construction eliminates tire growth and tread cracking; clearance and mating problems are simplified; cuts don't grow. Four extra impact plies absorb shocks and give maximum protection against impact breaks.

Let your Firestone Dealer show you how Firestone Tires will help you schedule more profits on every job.

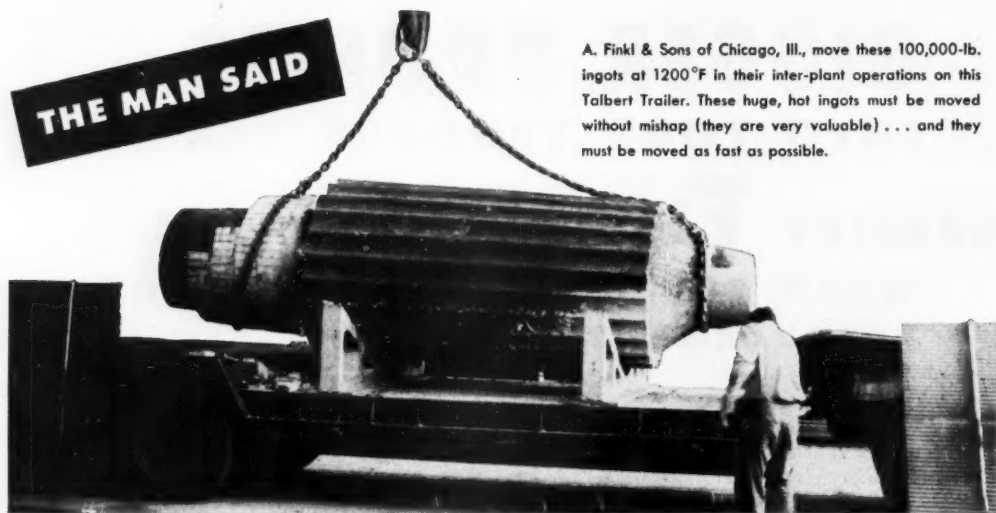


Enjoy the Voice of Firestone on radio or television every Monday evening over NBC

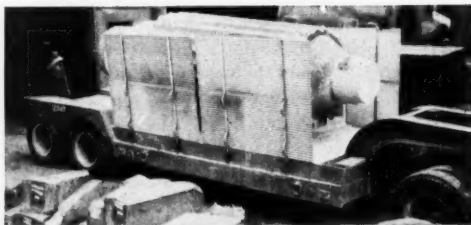
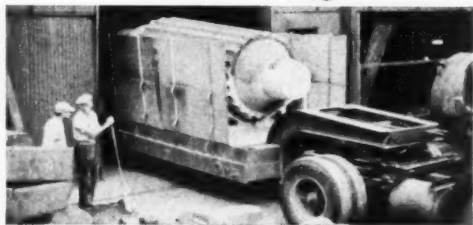
Copyright, 1952, The Firestone Tire & Rubber Co.

**THE MAN SAID**

A. Finkl & Sons of Chicago, Ill., move these 100,000-lb. ingots at 1200°F in their inter-plant operations on this Talbert Trailer. These huge, hot ingots must be moved without mishap (they are very valuable) . . . and they must be moved as fast as possible.



## "Transport this 100,000-lb. Ingot at 1200°F"



### **TALBERT Designed and Built a Special Trailer to do the Job**

This trailer has a short wheelbase to increase the maneuverability—insulated deck (poured gypsum) to protect the beams—and rear platform and fenders to shield the tandem unit and tires. Talbert Trailers are adaptable to many specialized hauling jobs and are built to stand heavy service loads and stresses.



**THE TALBERT CONSTRUCTION EQUIPMENT CO., of Lyons, Illinois manufactures a complete line of low-bed trailers and dump semi-trailers**

**THE TALBERT-WAY IS THE EASY WAY**

#### **OUTSTANDING FEATURES MAKE AN OUTSTANDING TRAILER**

- Front end loading—no rear bridge, short boards, minimum blocking, etc.
- Easy, safe, one-man operation.
- Large "production-priced" tires—interchangeable with tractor tires.
- Spring tandem suspension—for high road speeds.
- Minimum empty weight—maximum payload.
- Lightweight Removable Gooseneck\*—no moving parts.

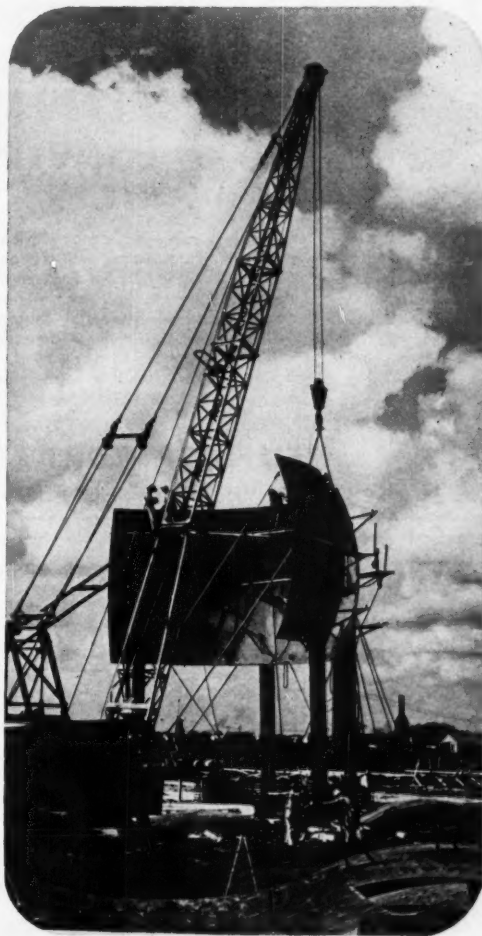
# WIRE ROPE

***This is the most  
economical rope  
we've ever made  
for excavating  
and construction***

ROEBLING is the best known name in wire rope. That's partly because we were the first wire rope maker in America. But more than that, we've always led in developing better wire and better rope for every purpose.

Today's Roebling Preformed "Blue Center" Steel Wire Rope is the best choice for efficiency and long life on excavating and construction equipment. This rope has *extra* resistance to crushing and abrasion . . . stands up under rough going. It saves you time and cuts costs.

There's a Roebling wire rope for top service on any job. Call on your Roebling Field Man for his recommendations. John A. Roebling's Sons Company, Trenton 2, New Jersey.



# ROEBLING

ATLANTA, 934 AVON AVE • BOSTON, 51 SLEEPER ST •  
CHICAGO, 5526 W. ROOSEVELT RD • CINCINNATI, 3555  
FREDONIA AVE • CLEVELAND, 701 ST. CLAIR AVE, N. E.  
• DENVER, 4801 JACKSON ST • DETROIT, 915 FISHER  
BLVD • HOUSTON, 6216 NAVIGATION BLVD • LOS  
ANGELES, 5240 HARBOR ST • NEW YORK,  
19 RECTOR ST • ODESSA, TEXAS, 1920 E. 2ND ST  
• PHILADELPHIA, 330 VINE ST • SAN  
FRANCISCO, 1740 17TH ST • SEATTLE, 900  
1ST AVE S. • TULSA, 321 N.  
CHEYENNE ST • EXPORT SALES  
OFFICE, TRENTON 2, N. J.



# DOUBLE the POWER

and you double the use  
of your FORD Tractor



## WITH A FUNK CONVERSION KIT

FUNK Products include:

Straight Power  
Take-Off Clutches  
Right Angle Take-Offs  
Front End Take-Offs  
Gear Reduction Units  
and Heavy-Duty Clutches

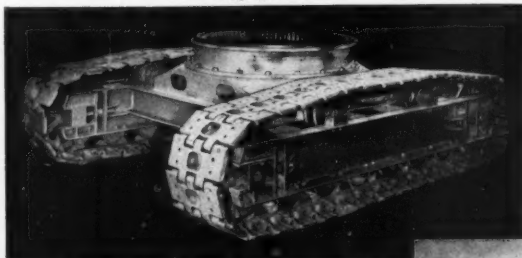


You can do unbelievable jobs with ease when you equip your Ford Tractor with a regular 100 h.p. V-8 or 95 h.p. 6-cylinder Ford engine, on your old or new tractor, with our change-over kit. Increases operation time, and enables tractor to handle heavier equipment and accessories. Conversion costs about 1/3 as much as most tractors of same power. Install it yourself or have your dealer do it. Write TODAY for specifications and prices.

## FUNK AIRCRAFT CO.

3303 AIRPORT DRIVE COFFEYVILLE, KANSAS

## HERE'S WHY WAYNE CRANE CARRIES SO MUCH WEIGHT



MODEL 66  
1/2-vd. 8-TON

### with men who know crawlers!

Take a good look at this crawler. You'll agree that the heavy-duty frame and all-welded chassis are built to take your toughest jobs—33,050 lbs. working weight as a trench hoe proves it. The 20-inch wide tread is standard (24" optional). Shoes are self-cleaning and nonclogging.

You be judge and jury—check with a Wayne Crane owner before you decide to buy any crane-excavator. Wayne Crane will pay for a phone call to the one nearest you. Your dealer will give you his name. Prove to yourself why men who know crawlers say, "Wayne Crane offers more built-in hours of profitable operation than any machine on the market today." That's why our best salesmen are Wayne Crane owners.



Dept. M

SEE YOUR WAYNE CRANE DEALER *Today!*

Complete service and parts facilities are maintained by  
Wayne Crane Distributors in all principal cities.

WAYNE CRANE DIVISION, AMERICAN STEEL DREDGE CO., INC., FORT WAYNE, IND.

## SALES AND SERVICE . . .

Continued from page 152

He was formerly general sales manager for the Southwest District with headquarters at Houston. In his new position, Mr. Brinker will supervise advertising and sales promotion, exhibits and displays and market analysis for the company.

**Universal Atlas Cement Co.:** Elected George S. Neel, western region sales manager, as vice-president, central and western region sales, Chicago.

**Whitney Chain Co.:** Has announced the appointment of Anthony J. Swisler as regional manager for the west coast and George A. Banton as district manager of the Southern California and Arizona territory.

## In the Main Office

**American Machine & Foundry Co.:** Samuel Sloan Auchincloss has been named executive vice-president of DeWalt, Inc., subsidiary of this company. Located in Lancaster, Pa., DeWalt is a leading manufacturer of power-cutting tools for wood, metal and plastics, including the DeWalt radial-arm saw.

**Nordberg Mfg. Co.:** The election of Admiral A. G. Noble, USN, (Retired), as executive vice-president, a member of the executive committee and a member of the board of directors was announced recently. Admiral Noble was formerly vice-president and general manager of the Martin-Parry Corp., Toledo.

**Blaw-Knox Co.:** Has appointed George L. Dirks to the position of general manager of its Blaw-Knox Division at Blawnox, Pa.

**Lincoln Engineering Co.:** Announces the appointment of Carl H. Mueller as director of engineering. In this capacity he will assume full charge of the engineering and research activities of the company.

## Special Mention

**Petersen Engineering Co.:** Gerald A. Petersen began a round-the-world tour recently, during which the PENGOL line of earth augers will be introduced in virtually every country outside the Iron Curtain.

**The Flexicore Co., Inc.:** I. A. Marquez, 12 Pi y Margal, Quezon City, recently completed negotiations for an exclusive franchise to manufacture and market Flexicore precast concrete floor and roof slabs in the Philippine Islands.

**Stewart-Warner Corp.** Has purchased substantial stock interest in Uni-Gun Lubricating Equipment, Ltd., of London, England, a company which presently manufactures a limited

(Continued on page 159)



# A BIG NEW 30 TON MPH Moto-Crane



## LORAIN MC-524

**30 TONS** lifting capacity  
— built "big-size" to  
do bigger jobs.

**30 MILES PER HOUR** —  
built fast to go far-  
ther, quicker and cover more  
scattered jobs.

**PULLY CONVERTIBLE** — as  
a crane, 1 yd. shovel, clam-  
shell, dragline or hoe to  
serve more different jobs.

A bigger machine with bigger opportunities than ever before! Now you can do more—as well as go farther, faster—because the MC-524 brings greater capacity, greater liftability and greater profit possibilities to scores of jobs which never before could benefit from the advantages of a fast-stepping rubber-tire crane. This bigger MC-524 is an additional reason your Thew-Lorain Distributor can best meet your job needs. See him first for the facts!

### NEW TOO!

#### 30-TON SELF-PROPELLED SP-524

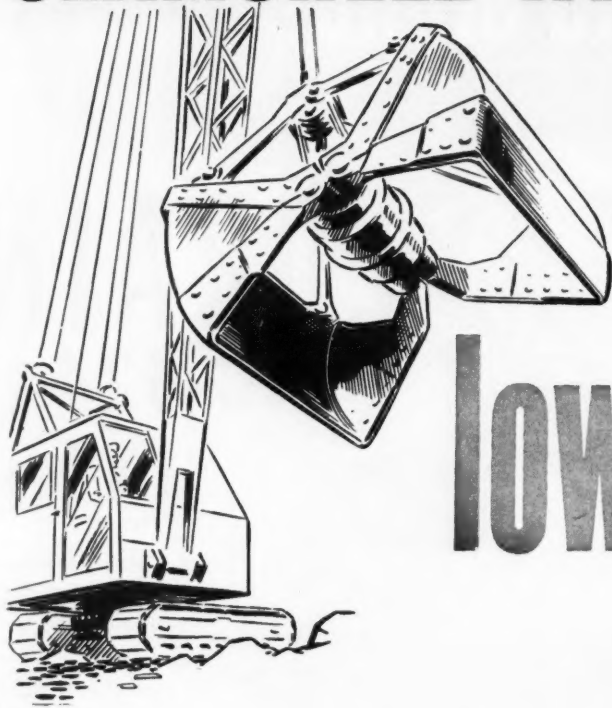
A companion to the MC-524 Moto Crane — a new single-engine Lorain SP-524 Self-Propelled Crane with bigger capacity for a greater field of operations. 7-1/2 m.p.h. travel speed for localized mobility. Check it today!

THE THEW SHOVEL CO., LORAIN, OHIO



## THEW LORAIN

# CLAMSHELL WITH



# stiff lower lips

Rock-picking packs a tough wallop for a pair of bucket lips. Whether the load is sludge or tight-grained granite, abrasion alone is enough to wear thin the toughest steel . . .

. . . But — when you throw in the almost continuous impact when the clam is in the hands of a high-grade operator — bucket lips are sure to curl back and quit . . .

. . . Unless you have taken the precaution to pre-

protect the life of your buckets — up to twice as long as the unprotected type — with one of the many Airco Hardfacing Alloys available to extend the life of all your equipment.

'Face' it. There are more than twenty Airco Hardfacing Alloys for you to choose from. Any Airco representative will be glad to give you complete information. Contact your nearest Airco Office today.

AT THE FRONTIERS OF PROGRESS YOU'LL FIND



DEALERS  
AND OFFICES IN  
PRINCIPAL CITIES

## AIR REDUCTION

AIR REDUCTION SALES COMPANY • AIR REDUCTION MAGNOLIA COMPANY • AIR REDUCTION PACIFIC COMPANY

REPRESENTED INTERNATIONALLY BY AIRCO COMPANY INTERNATIONAL

DIVISIONS OF AIR REDUCTION COMPANY, INCORPORATED

## CONSTRUCTION TRACTOR IS NEWS!



### The POWER HORSE

Save on these  
Jobs!

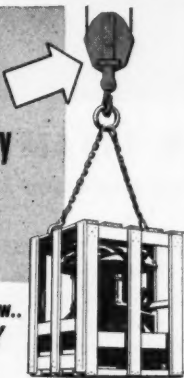
- DOZING
- DITCHING
- WRECKING OPERATIONS
- BACK-HOE TRENCHING
- TOWING
- SNOW PLOWING
- FRONT END LOADING
- SPOTTING HEAVY MATERIALS

BIG economy news! Here's "Crawler Performance at low Wheel Tractor price!" Great Traction with more maneuverability and speed for your jobs. Less operator fatigue than ever before. Power Packed Chrysler Heavy Duty Engine. Heavy Duty Rear Winch plus Live Power Take-Off Forward.

Get the news today! write!

**CROCKETT BROS.** Distributors  
STOCKTON, CALIFORNIA  
P.O. Box 204 - F

What's  
the  
capacity  
of  
this  
block?



If you don't know...  
don't use it!



Specify  
**AMERICAN  
CROSBY**

**Load-Rated!**

**BLOCKS**

Safe working capacity  
embossed on side plate

DISTRIBUTORS EVERYWHERE

**AMERICAN HOIST & DERRICK CO.**  
ST. PAUL 1, MINNESOTA

## SALES AND SERVICE . . .

Continued from page 156

line of products similar to Stewart-Warner's Alemite lubrication equipment line. Along with its stock interest, Stewart-Warner will have operating control of the English company.

**Olin Industries, Inc.:** The establishment of the Ramset Division as the ninth operating division of this company, and the appointment of J. E. Williams as general manager, were announced recently. This division will be responsible for the development, production and sale of powder-actuated tools, fastening studs and accessories, and will operate the following Olin subsidiaries: Ramset Fasteners, Inc., The Stemco Corp., and Portable Industries, Inc., all located at 12117 Berea Rd., Cleveland, Ohio.

**Barco Mfg. Co.:** A new plant is being constructed at 500-530 N. Hough St., Barrington, Ill., for occupancy early in 1953.

**Skill Corp.:** Is the new name of Skil-saw, Inc., Chicago manufacturer of portable electric and pneumatic tools.

**Borg-Warner Corp.:** E. C. Atkins and Co. of Indianapolis, pioneer saw-manufacturing concern, was acquired by Borg-Warner recently. Stanley J. Roush of Pittsburgh has been elected president and general manager of this division, to be known as the Atkins Saw Division. Other officers are: H. G. Ingersoll and L. G. Porter, vice-presidents; D. H. Potter, secretary-treasurer.

**H. Wenzel Tent & Duck Co.:** Manufacturers of FlameZel and RainZel Tarpaulins, announced this week the completion of a new finishing plant at New Haven, Mo.

## Association Activities

**National Constructors Assn.:** W. H. Kelly, Jr., assistant to the general construction superintendent of The Lummus Co., New York, has been elected chairman of the Safety Committee to complete the unexpired term of F. R. Griffin, of the Koppers Co., former chairman.

**National Clay Pipe Assn.:** Robert G. Scott, who for 16 yr has served as chief engineer of the Clay Products Assn., has been appointed vice-president and general manager of that association.

**Portland Cement Assn.:** Announces the appointment of Carl A. Menzel, former manager of the Housing and Cement Products Bureau, as Consultant on Concrete Technical Problems. Succeeding Mr. Menzel in his former position is S. H. Westby, assistant manager of the Bureau since 1945.

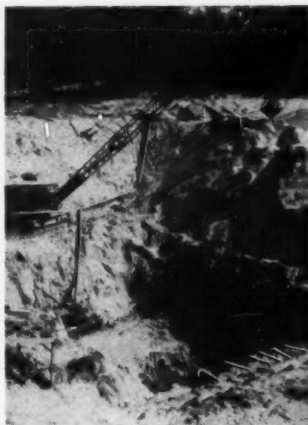
## HOW TO HANDLE WET JOBS

#10 of a Series

### DEEP PIT EXCAVATION

Malta, N. Y.

Excavator: Maloy, Dugan & Maloy  
Gen'l Contractor: Carl Buhr, Inc.



### DEEP PIT STABILIZED DESPITE STEEP SLOPES

THIS JOB TOOK great engineering skill—to dig a 37-ft deep pit in fine sand containing 17 ft of water—to do this without collapse of the steep slopes, so that quantity of excavation could be held to a minimum. Furthermore, borings taken only to subgrade had not revealed a silt layer 6 ft below, and this added still another headache, since artesian pressure threatened to "blow the bottom."

• Using a combination wellpoint dewatering and pressure relief system (see photo) Griffin engineers stabilized the excavation . . . kept subgrade dry . . . solved all the problems economically and dependably. What's your problem?


**GRIFFIN**

**WELLPOINT CORP.**

881 East 141st Street, New York 54, N. Y.  
Hammond, Ind. Houston, Tex. Jacksonville, Fla.

In Canada: Construction Equipment Co., Ltd.  
Toronto Montreal Halifax

# QUAKER *Production-eered*\* HOSE



**OUTLASTS REGULAR HOSE  
... 3 YEARS TO 3 DAYS**

## QUAKER STEAM HOSE


ORDINARY HOSE BURSTS IN 3 DAYS . . . QUAKER STILL GOOD AFTER 3 YEARS

High steady production—driving up to 80 steel piles a day. "Blow outs" eliminated . . . hundreds of man-hours saved. Piling up this impressive production record proved easy—once QUAKER "production-eered" Super Ebonite Steam Hose was put to work on this brawny Texas pile driver.

Softened by lubricating oil and 120 lb. pressure, ordinary steam hose burst about every 3 days—blowing into the hammer . . . clogging it up. On duty well over 3 years, the QUAKER "production-eered" hose still shows no signs of softening. Still no "blow-outs" . . . no costly shutdown for repairs.

Just one more example of QUAKER "Production-eering" at work. Let an experienced QUAKER "Production-eer" help you boost production, cut costs—with QUAKER "production-eered" hose, belting, packing, and molded rubber products.

**\*Production-eering**—Every Quaker Industrial Rubber Product is "production-eered"—engineered to provide maximum life, efficiency and production on each type of installation. Quaker "Production-eers" are ready to recommend the right rubber product for the job. For timely production tips, get the new free booklet on "Production-eering for Industry." Write today.

Get This Book 



## QUAKER RUBBER CORPORATION

DIVISION OF H. K. PORTER COMPANY, INC.

PHILADELPHIA 24, PA. • BRANCHES IN PRINCIPAL CITIES



## What Price Accidents?

HOW MUCH do construction accidents cost? The figure is far larger than the direct costs would indicate. Even without the higher insurance rates charged an accident-prone contractor—which put him in a tough spot when bidding against safety-minded competitors—the average indirect cost comes to more than \$4 for each \$1 spent directly for compensation and medical aid to the injured employees. This information comes from the Bureau of Labor Statistics, which analyzed 70-odd accidents on building erection jobs and came up with the following breakdown:

Direct cost	\$209
Indirect cost	937
Ratio: Indirect/Direct	4.5 to 1

Further analysis indicates that the indirect cost is made up of these items, all paid by the employer:

Hurt employees' lost time	\$116
Fellow employees' lost time	310
Executives' lost time	78
Property damage	158
Delay to job	200
Overhead expense	75
Total indirect cost	\$937

But these are average figures, of course. Actual out-of-pocket expenses often run much higher than the 4.5 to 1 ratio, as indicated by this case history of one such construction fiasco:

Trouble began when a man hoisting hot tar to a roof was distracted by horseplay, and fouled the tar bucket in the sheave on the outrigger. The impact dislodged the counterweight, dropping tar and outrigger to the ground. Compensation and medical aid to two burned employees cost \$180.

However, the falling outrigger hit the hoist shanty of a material elevator, startling the operator so much that he lost control of the descending cage. This crashed to the ground, where it kicked out two legs of the tower and caused it to collapse. It cost the contractor more than \$4,000 to clean up and repair the resulting mess.

Could this or a similar incident take place on one of your jobs? It's a distinct possibility, unless the entire organization—top management, project supervisors, foremen and workers—are made safety conscious and kept safety conscious at all times.

# SAVE MORE THAN EVER... NEW

## **Ramset** FASTENING SYSTEM **JOBMASTER** and **Tru-Set Fasteners** for steel and concrete fastening

★ **star values bring**  
new ease, speed,  
utility and economy

SEE the new RAMSET JOBMASTER that fastens in **split seconds** into steel or concrete. Check the big, **10-Star Values** for faster, easier, better fastening than ever before. **One-Piece Tool and Trigger Action** for quick, simple loading and firing. **Self-contained Barrel Extension**, always ready when needed. **Gas Diverter** to stop spalling. **Visi-Chek Button** and **Manual Safety Control** for positive protection. Exclusive **Roto-Set Safety Shield** for pin-point positioning. All these add up to the greatest work-saving, time-saving, money-saving advantages in the industry.

### Always Use Tru-Set Fasteners

When you add these JOBMASTER values to the advantages of Tru-Set Fasteners, with the exclusive Red-Tip Pilot that guides them straight to the work, you've got an unbeatable combination for ease, speed, utility and economy. With 54 sizes and types, there's a Tru-Set Fastener for almost any job. Ask your RAMSET Dealer today for Fastener Specification Booklet, and demonstration of how this RAMSET team can cut fastening costs and get work finished faster. Remember, RAMSET SYSTEM is the pioneer in powder-actuated fastenings—with more users than any other tool.

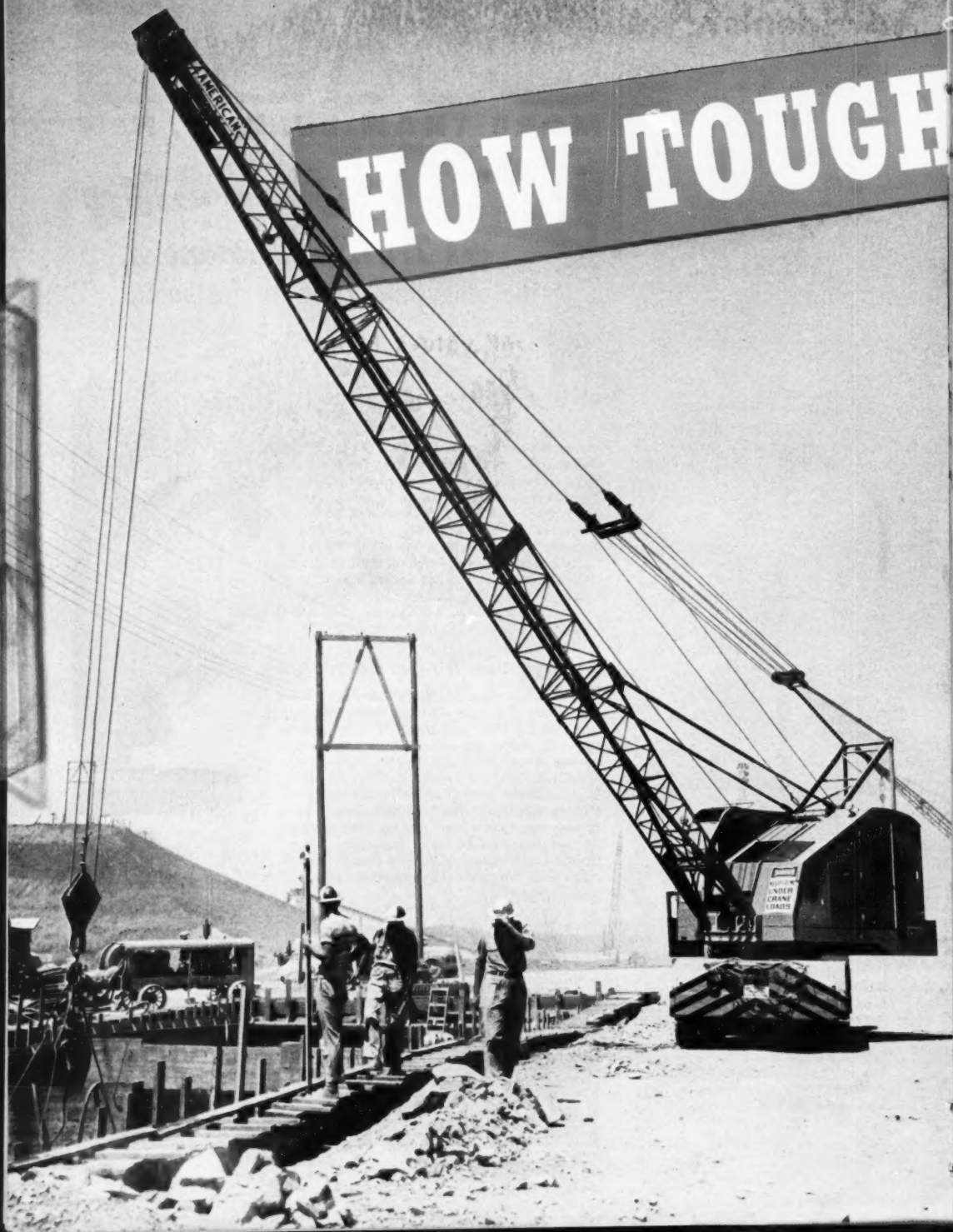


**Ramset Fasteners, Inc.**  
Division of Olin Industries, Inc.

12117 BEREA ROAD • CLEVELAND 11, OHIO



HOW TOUGH



# ARE YOU?

## Fighting Controls?



### ...not on the American 375!



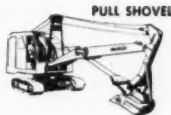
DRAGLINE



SHOVEL



TRUCK  
MOUNTED  
CRANE



PULL SHOVEL

Anti-Friction bearings make it the sweetest, easiest operating machine in the field today—anti-frictions in the brake linkage cut leg work over 50%—anti-frictions in every clutch drum and clutch shaft give you sensitive, safe control—you "feel" your load every second and, mister, with control like that your production goes UP!

**Built by  
American Hoist**

**& Derrick Company  
ST. PAUL 1, MINNESOTA**



#### MAIL THIS COUPON

CLIPPED FROM  
OCTOBER, 1952  
CONSTRUCTION METHODS

**American Hoist & Derrick Co.  
St. Paul 1, Minnesota**

● Please send more information on the new AMERICAN 375.

☐ CRANE ☐ SHOVEL ☐ DRAGLINE ☐ PULL SHOVEL  
☐ TRUCK CRANE

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

Have you discovered these

in

wire rope?

You get 3 important, unseen values in Hercules Red-Strand.

The first is *extra endurance*.

The second is *consistently high performance*.

The third is complete *dependability*.

These values are made possible by Leschen's exacting insistence upon *higher-than-rated quality* . . . by precise, specialized manufacturing craftsmanship . . . and by the constant use of only the finest known grade of steel for long-lasting Hercules Red-Strand wire rope.

Service records prove these hidden values. Your records will too.

Higher operating profits may be yours with Hercules Red-Strand wire rope. Talk it over with your Leschen wire rope specialist before you place your next rope order. Or, write for bulletin.



A. Leschen & Sons Rope Co., St. Louis 12, Missouri

In business only to make wire rope — better wire rope — since 1857.

DISTRIBUTORS IN ALL PRINCIPAL CITIES

## Pipe Tricks

### The Big U

A U-shaped 375-ft length of pipe was laid in one piece recently for the Los Angeles Department of Water and Power as part of a 16-in. water main across Cerritos Channel from the mainland to Terminal Island in Los Angeles Harbor.

The 16-in. steel pipeline runs along a bridge just under the roadway, but must detour under a drawbridge through which large ships pass. A U-shaped section was designed 235 ft long at the base with vertical arms at each end measuring 70 ft.

The pipe was assembled on a Long Beach wharf and transported by barge-mounted cranes to the point of installation. The cranes lowered it till it rested on the bottom—55 ft below the surface of the water—with the help of divers to guide it into place. The upright arms were attached to the main on either side of the drawbridge by flexible slip joints.

The section was assembled and installed by Smale & Robinson of Long Beach at a contract price of \$40,840. Pacific Towboat and Salvage Co. provided the floating cranes. One was a steam rig with a 130-ft wooden boom, 75 tons lifting capacity. The other, having a 100-ft steel boom and 50-ton capacity, was a Clyde full-revolving crane powered with a Cummins diesel engine.

### Floodproof Outfall

A sewer outfall requires special construction because it may be exposed to flooding and high-velocity stream currents. Frequently, the design calls for a massive concrete headwall, with wingwalls and current deflector set on piling.

Armco engineers recently suggested a different design which was employed at Middletown, Ohio. The final 32 ft of an Armco Asbestos-Bonded 102-in. sewer was placed inside a 120-in. Multi-Plate pipe and the annular space between the two pipes filled with concrete. The double pipe section is tied to two concrete saddles around the bottom third of the pipe, placed about 8 ft from each end of the final 32-ft section.

This construction saved several thousand dollars over the original proposal and is considered to be a more permanent structure.



(Advertisement)

## LeTourneau pictures of the month . . .

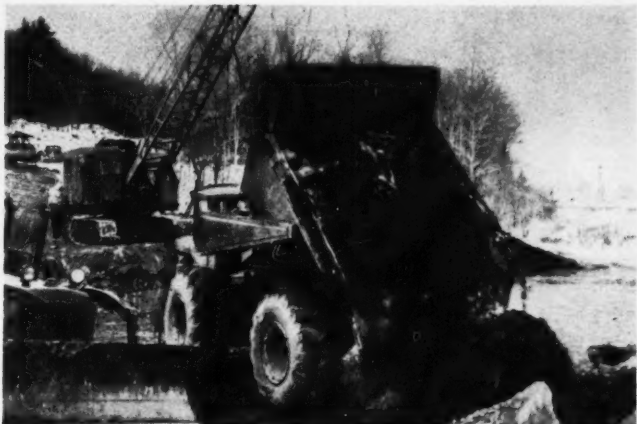


**BUSY FOR THE STATE** — portable asphalt plant assembled and operated under the direction of Grady McCardle, Mississippi State Highway Dept, Hattiesburg, averages 770 tons per 9-hr day. All feeding work is handled by Tourna-

dozer at left. After 3½ yrs, over 6,000 hrs work in sand and gravel, rig still has original tires. "Haven't had a minute's trouble with them," says McCardle. Tracks would have needed at least 5 or 6 complete overhauls during same period.



**NO OUTRIGGERS** — That I-beam is 30 ft long, weighs 14,000 lbs, yet Tournacrane handles it without outriggers. Low-pressure tires cross tracks, pavement, without damage. Job was done by Texas Delivery Service, Dallas.



**BEATS WINTER SHUTDOWN** — Frank Whitcomb works his 2 rear-dump Tournarockers 12 months a year. In New Hampshire, where he does most of his work, temperatures often drop well below zero. But no matter how cold it gets, Tournarockers dump any material that can be loaded. Electrical induction body heating keeps loads from freezing. When unheated trucks have to be used under similar cold weather conditions, they must be cleaned out by a small pull shovel.



**ATOMIC PLANT** — Tournadozer is the only sign of life on this part of a secret defense project. Once excavation is completed, though, the place will be buzzing with activity. Hundreds of men and machines will move in for building and testing purposes.



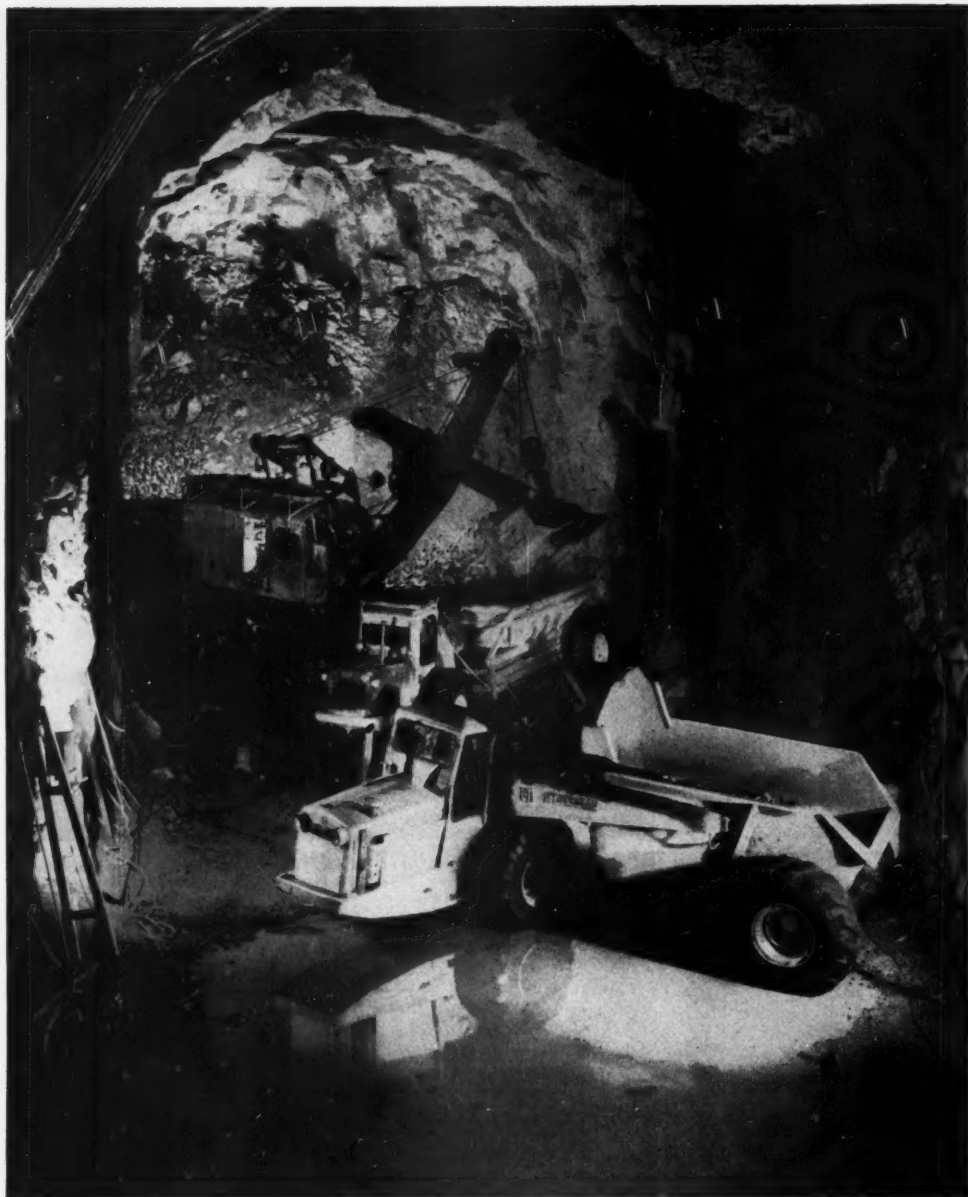
**"HANDY AS A PAIR OF PLIERS"** — says Bill Ryan, senior partner, P. W. Ryan Sons, Janesville, Wis, and former president of AGC, in describing the 7-yd D Tournapull he uses for finish-grading behind 13 large scrapers. "The 'D' by no means replaces larger units, but in many places it does much better," Ryan says. "We're constantly finding new uses for it. It's like a pair of pliers . . . does a lot of small, but necessary operations efficiently. It has a place on every job."



See next page

(Advertisement)

## LeTourneau pictures of the month (cont'd.) . . .



### DIG 2.9-MILE TUNNEL THROUGH SOLID ROCK

These rigs are not toys. That's a 2 $\frac{1}{4}$ -yd shovel, loading one of six 18-ton LeTourneau haul units used on this job. They are digging a sloping 2.9-mile-long, 40-ft high tunnel through tough, sharply-fragmented gneiss-type rock to connect two lakes in Sweden. The fall of water through the tunnel from one lake to the other will provide electrical power. Tunnel is only 36 ft wide, yet Tournarockers turn around easily in one continuous sweep. Loads

average 18 tons each. Production averages 36 tons hourly over typical 2 $\frac{1}{4}$ -mile cycles. Digging is so tough that only 20 lineal ft of tunnel is opened per day. "In spite of severe conditions, repair and maintenance costs have been very low," says S. Westby, chief engineer on the 785,000-yd project, one of the largest ever contracted in Sweden. "Tournarocker's greatest advantage is its maneuverability and short 13 ft 9 in. turning radius."

## Performance reports on LeT equipment in action



**HUNTS OIL IN 150° HEAT** — 250 miles from the nearest oasis, this Tournadozer is really getting a rough workout. Used by the Iraq Petroleum Co. exploration crews in eastern Arabia, it prepares drill locations, levels camp sites, and builds haul roads. Rig works 10 to 18 hrs a day in temperatures which hit 150° in the daytime, then drop to 35° at night. Material is mostly desert sand with occasional outcroppings of coral and sandstone. Only servicing required in the past year has been routine weekly inspections.



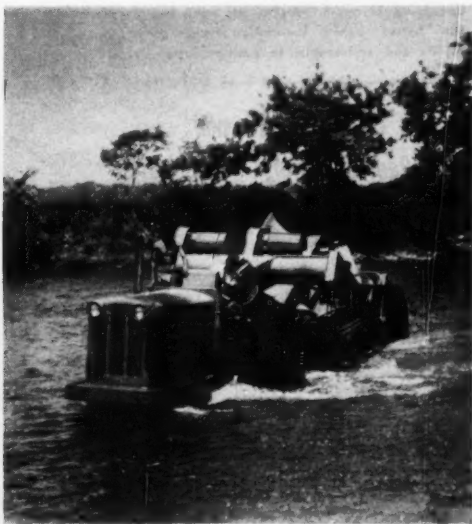
### **BOOSTS BLACKTOP REMOVAL 380%**

— Before resurfacing U.S. 112 near Somerset, Mich, Ann Arbor Construction Co. used this Tournadozer to strip 2 miles of 2 to 4-in. blacktop from the 20-ft concrete roadbed. Despite continuous traffic, Tournadozer averaged 480 lineal ft per day. The most a backhoe with grader blade attached to bucket could clear was 100 ft per day. Total cost with Tournadozer, including loading and hauling refuse, and maintaining traffic, was about 47c per sq yd, or \$1.00 per lineal ft.



### **DRIVES 755 MI IN 34 HRS**

— Rogelio Viesca, Mexico City contractor, recently took his rubber-tired Tournapulls on a long journey. Rigs drove over paved highways, through cities and towns, and across 8,000-ft mountains to reach Mexico City from Laredo, Texas. They made the 755-mi trip in 34 hrs, total driving time (an average of 22 miles an hour) . . . went to work on construction of a new spur line for Pemex Oil Co. the day they arrived at the job site.



### **WORKS UNDER WATER**

— Tournapull wades across 5-ft river on the way from Panama City to Pan American Highway job near David on the Costa Rican border. Though water covered generator, rig's electric controls were not affected, reports Owners Vallarino & Arias. That's nothing unusual, though. Water never stops the LeTournesau electric motors or generator. One motor, operated underwater for 4 yrs as a test, still runs as well as ever.



See next page

(Advertisement)

## LeTourneau pictures of the month (cont'd.) . . .



### HIGH-SPEED PUSHER ON RUBBER

LeTourneau now offers a 4-wheel prime-mover including pusher plate for \$19,075 — an FOB price lower than any crawler of equivalent power. This cost includes 18.00 x 25 low-pressure tires, constant-mesh transmission and a diesel-electric power generator. In performance you get:

1. Speeds to 19 m.p.h. forward and to 8 m.p.h. reverse.
2. 186 "horses" behind low-friction 4-wheel drive.
3. Agility and acceleration to position faster.
4. Instantaneous speed selection, no loss of momentum.
5. Improved safety with better visibility, comfort, and ease of control.
6. Moves on-the-job or via highway job-to-job at 19 m.p.h. You need no truck, no trailer, no blocking, no loading or unloading.
7. Crosses curbs, tracks, driveways without planking.
8. Lower maintenance through elimination of about 500 wearing parts of a crawler's track assembly.

To: R. G. LETOURNEAU, INC.  
Peoria, Illinois

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(name tool)

NAME .....

TITLE .....

COMPANY .....

ADDRESS .....

Type of work to be handled.....

G-237-G



**REAR-DUMP CARRIES 50 TONS PER LOAD** — Here hard at work in the Pennsylvania anthracite fields is one of Colitz Coal Co.'s three 50-ton Tournarockers. Behind a 450 hp butane engine, these rigs carry 41 pay yards per load. They are 36 ft long overall, yet turn in a radius of 15 ft 8 in. With Tournarockers, you can forget many of your old rear-dump troubles. These rigs have no frame, sub-frame, springs, tie rods, or hydraulics. Electric push-buttons control steer, dump and gear shift.

Tournapull, Tournadozer, Tournarocker, Tournaroller  
— Trademark Reg. U. S. Pat. Off. G-237-G



# SANTA CLAUS

## Could Die of Old Age

**N**o one shoots Santa Claus. This remark about a government which spends and spends and spends may well be true. But it is also true that Santa Claus is an old man. At his age overwork might well kill him.

It is with the possibility of working Santa Claus to death that this editorial is concerned. No position is taken as between the contending political parties in the present campaign. Our concern is with the problem of protecting Santa Claus.

It is true that as a nation we now enjoy great prosperity. The prosperity is not nearly so general as the political advertisements of it would suggest. Millions of individuals, notably those living on pensions, annuities and other fixed incomes, have been robbed of half their purchasing power by inflation during recent years, and whole industries know little or nothing of boom times.

However, measured by so basic a gauge as unemployment, we do have great prosperity. Less than two million of our total working force of over 64 million are unemployed,

and many of them are unemployed only while moving from one job to another. The real income, i.e., what their dollars will buy, of those with jobs is somewhere near its all-time peak.

### **Our Prosperity is Precarious**

The prosperity we enjoy, however, is precarious. This is primarily because it is dependent upon a rising volume of expenditures by the federal government. At present almost a quarter of our entire national income is ladled out through Washington, and in an ever increasing amount.

If, as matters now stand, federal expenditures were to be suddenly and sharply cut, our government-financed prosperity would be severely upset. But if the federal government were to try to keep right on providing prosperity by steadily increasing its expenditures, the end result would be more certainly disastrous. It would be a crash caused primarily by having continuing inflation of prices destroy the value of the dollar.

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*(Continued on next page)*

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Higher government expenditures of worthless dollars then could accomplish nothing. Santa Claus would be dead from overwork.

### **To Provide Firm Foundations**

The general route to be followed in putting firm foundations under our prosperity is quite clear. It involves two steps which must be taken closely together. The first is to stop the continuous increase in federal expenditures. The second step is to substitute expanding private business for government-financed business as the principal foundation of expanding prosperity.

The increase in federal expenditures can be stopped without sacrificing any effective measures now directed toward meeting our top priority requirement—protection from armed Communist aggression. The most competent authorities of both major parties agree it can be done by (1) better planning of and the elimination of outright waste in defense arrangements, and (2) cutting those civilian expenditures which cannot be justified at the same time we are undertaking a great new load of defense expenditure.

It is also possible to substitute expanding private business for government-financed business. The problem is primarily that of relieving private business of the staggering load of federal taxation it now is carrying. Federal taxation now takes 52 per cent of all corporate profits and 82 per cent of all so-called excess profits. If it were not for the forced draft placed under our economy by rapidly mounting defense expenditures, this burden would surely lay a disastrous blight on private business expansion. If expanding private business is to have a chance to play its critical role as a substitute for government-financed business, its taxes must be cut, and soon.

### **It Won't be Easy**

It would be naive to contend that it will be easy to check the expansion of federal expenditures. They have been running wild too long, and in the process contributing to a feverish, inflationary prosperity. Likewise, there is no reason to believe that the easing of the load of business taxes is going to be easy. The basic blight it puts on business expansion has been too long obscured by having our economy dosed with artificial stimulants, most notably enormous injections of federal expenditures.

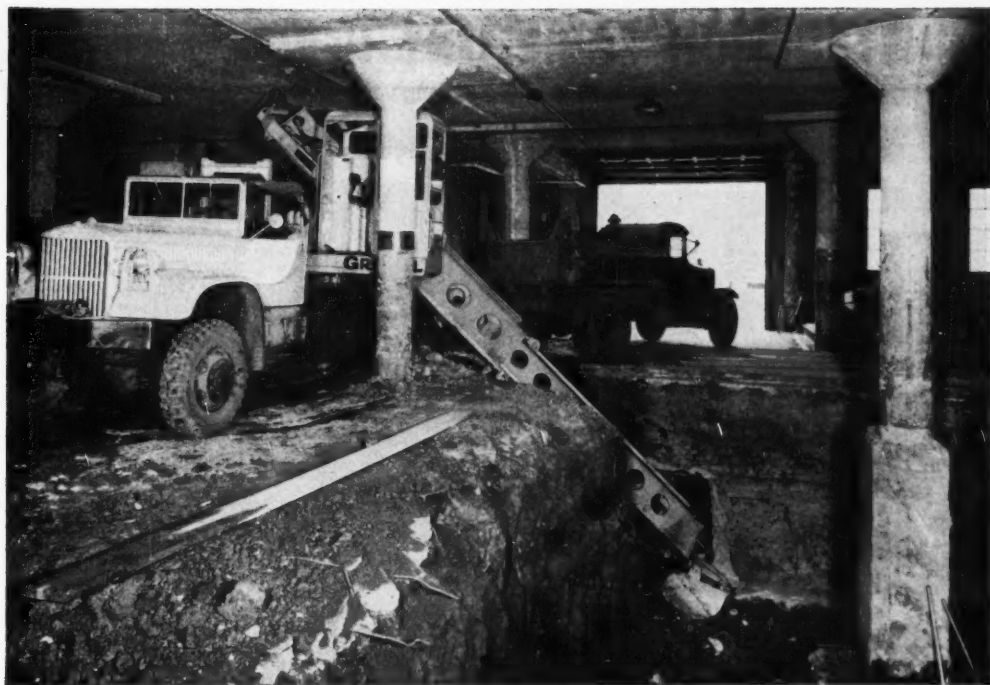
### **The Key Question — How Long?**

It is obvious that prosperity is going to be a major topic of discussion in the present political campaign. There is nothing the matter with that. Prosperity is a key concern of the voters in choosing a national administration.

To make the discussion of prosperity really useful, however, it is important to ask and get answers to the right questions about it. The key question is not whether or not we have prosperity. That we have it in large measure is generally conceded.

The key question is, "How long can we continue to have prosperity?" The answer—not very long if we continue to rely primarily on new injections of inflationary federal expenditures. Santa Claus, be it remembered, is no youngster. If we continue our present improvident course, he will be worked to death. Those politicians, regardless of party, who see this clear danger and who have plans to escape it are facing up to the crucial question about our prosperity.

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WHEN YOUR CONSTRUCTION WORK must be done in "tight" places such as this, there's one machine you can count on to do the job quickly—the Gradall.

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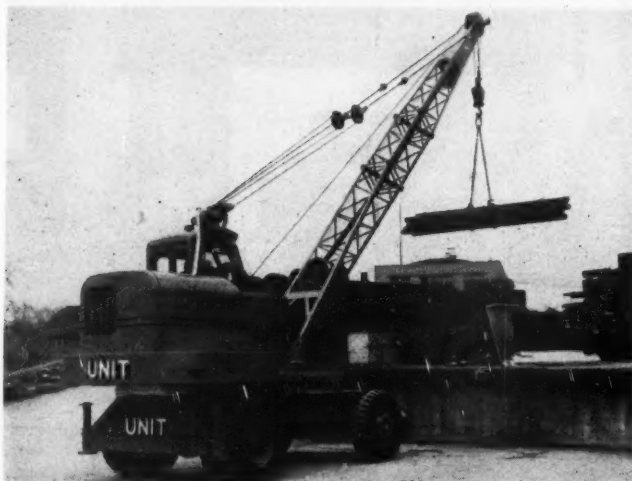
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GRADALL—THE *Multi-Purpose* EARTH—MOVING AND CONSTRUCTION MACHINE

# CONSTRUCTION EQUIPMENT NEWS . . A Preview of

JAMES M. CONNOLLY, Equipment Editor

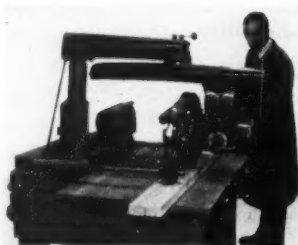


## Fluid Torque Drive for Unit

The  $\frac{1}{2}$ -yd crawlers and other mobile machines made by Unit Crane & Shovel Corp. will sport Fluid Torque Drive as a standard installation from now on. It's one more step in the increasing use of torque converters for heavy construction ma-

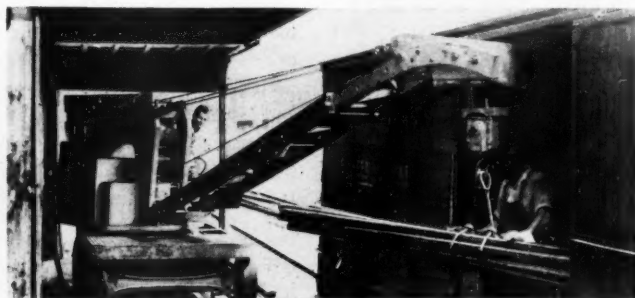
chinery, resulting in elimination of shock loads that in turn adds life to bearings, shafts, gears and cables. Unit offers the Chrysler  $12\frac{1}{2}$ -in. torque converter at no extra cost on machines equipped with 6-cyl Chrysler industrial gasoline engines.

Straight-in-line mounting is retained. By this method the engine is mounted longitudinally on the turntable so that the output or power takeoff shaft is directly in line with the input shaft of the main machinery gearing. The first reduction is a worm and worm gear which connect through a roller chain-type flexible coupling to the torque converter. The straight-in-line mounting, in combination with the worm gear, greatly simplifies the problem of adapting engines of various makes and speeds to the company's machines and is particularly advantageous in the case of the torque converter. The engine clutch (and its related lever system) has been eliminated. In conventionally driven machines it is located between the engine and gear case and is required as a disconnect clutch because of rigid mechanical drive. In addition to elimination of shock loads, the company claims that Fluid Torque Drive builds up line pull without excessive load, gives smoother control of all operations, provides steady power for peak loads without stalling, increases lugging power for hard excavating and provides for regulated load handling by throttle control. The machines have been thoroughly field tested in operations for shovel, clamshell, dragline and backhoe.—Unit Crane and Shovel Corp., 6411 W. Burnham St., Milwaukee 14, Wis.



## Power Feeder for Radial Saws

An exclusive vari-speed safety power feed is now available for use on Delta radial saws (CM&E June '52, p. 145). An operator can pre-set the rate of feed he wants to any speed from 20 to 100 fpm by turning a dial. In this way inexpensive electric power is used instead of costly muscle power to provide simplified, faster material handling. As blades lose their sharpness, adjustments can be made with a simple twist. When not in use, the power feed unit can be lifted out of the way.—Delta Power Tool Div., Rockwell Mfg. Co., Milwaukee 1, Wis.



## Crane Truck Snakes Material Out of Boxcars

Car unloading problems of National Acme Co. in Cleveland are no different from those of countless other companies; the difference is that they have found a solution. Along with many other shipping and receiving problems they've often had to unload 20-ft lengths of tube steel stock from boxcars with 6-ft door openings and on a platform with only 10-ft headroom. They use a Baker-Raulang crane-truck that snakes bundled loads of steel through the boxcar door at an angle, while a laborer guides it to the proper spot

on the loading deck after having "hooked on" inside the car. National says it formerly used four men on this job—with lots of muscle power and countless possibilities for smashed fingers. Now two men and the machine—one man operating and the other guiding—take less time. When not in use on the shipping platform the rig can be used elsewhere in the plant or yards for a variety of materials handling jobs.—The Baker-Raulang Co., Baker Industrial Truck Div., 1230 W. 80th St., Cleveland 2, Ohio.



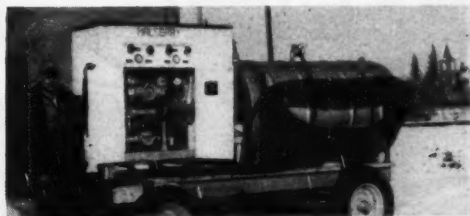
## New Machinery, Tools and Equipment That Will Help You on the Job



### Maintenance Goes Over With a "Boom"

A 6,000-lb-capacity Yale electric crane truck, equipped with the latest idea in an articulated platform, is used for faster, easier maintenance on lighting and all other overhead equipment at Caterpillar Tractor Co.'s new plant in Joliet, Ill. Repair men step on the platform at floor level and the operator quickly booms up to put

them within convenient reach of the most out-of-the-way fixtures. Mechanical linkage keeps the platform perfectly level at all heights, the boom can be telescopically extended to a maximum of 19 ft, and the cab will swing through 270 deg. This same truck is used with equal ease outside the plant to reach over lawns and tree belts to service lights, signs and other fixtures.—The Yale & Towne Mfg. Co., Philadelphia 15, Pa.



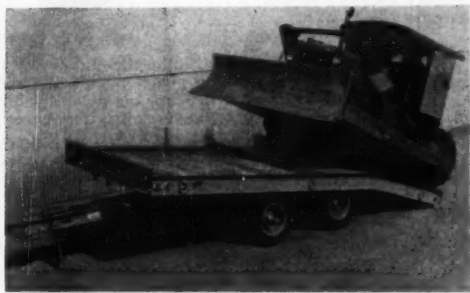
### Portable Steam Generator Answer for Thawing Hydrants

There's hardly a better place to test the efficiency of a steam generating rig in thawing sewers and hydrants than in the little town of Leduc, Alberta, Canada. Sub-zero temperatures prevail there for so long that sewers, hydrants, standpipes freeze solid. City officials tried electric current and small vapor steam cleaners and thawed lines OK—but they froze right up again. The Malsbary 250 thaws a 4- or 5-ft radius to prevent quick re-freezing. Steam is fed directly into a sewer through a 1½-in. hose attached to a sewer rod. Hydrants are thawed both inside and out with live steam, delivered at 325 deg F.—Malsbary Mfg. Co., Room M, 845 92nd St., Oakland, Calif.



### Schramm's Pneumafeed Now Carries a Wagon Drill

After driving right up to the drilling site and blocking his wheels as an added safety precaution, this operator can swing the self-powered wagon drill through a 180-deg arc and drill at practically any angle anywhere on the semicircle. Hung on a 6-ft arm extended from a vertical centerpost, the drill is so constructed that it can be used horizontally to a distance of from 10 ft above to 3 ft below ground. When the rig is in transit, its drill fits snugly in front of either rear drive wheel, close to the body. It's been used for overdrilling in mines, test-drilling in pavements for gas leaks, and for rock removal on highway jobs. A quick change replaces the drill with a paving breaker for cutting ditch edges, removing curbs, driving sheeting, etc.—Schramm, Inc., West Chester, Pa.



### Jahn Tilt Trailers in Five New Sizes Handle 10 to 20 Tons

A few seconds after this picture was taken the tractor was sitting firmly on its new JTO-410 tilt trailer with the blade firmly resting against the front channel. The positive platform lock, one of the main features had slipped securely into place and the rig was ready to go. The company's JT-408 was a tilt trailer with a low deck between the wheels. The new models are labeled JTO-410, 412, 414, 416 and 420. The last two digits in each case indicate the load each can carry in tons. Owners have a choice of no brakes at all, or braking powered by vacuum, air or electricity. The company recommends its automatic hydraulic rams for cushioning the load.—Jahn Trailer Div., Pressed Steel Car Co., Inc., 6 N. Michigan Ave., Chicago 2, Ill.



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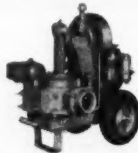
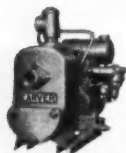
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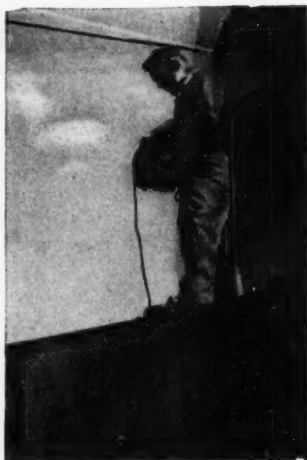
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CARVER PUMP COMPANY, 1402 Hershey Ave., Muscatine, Iowa



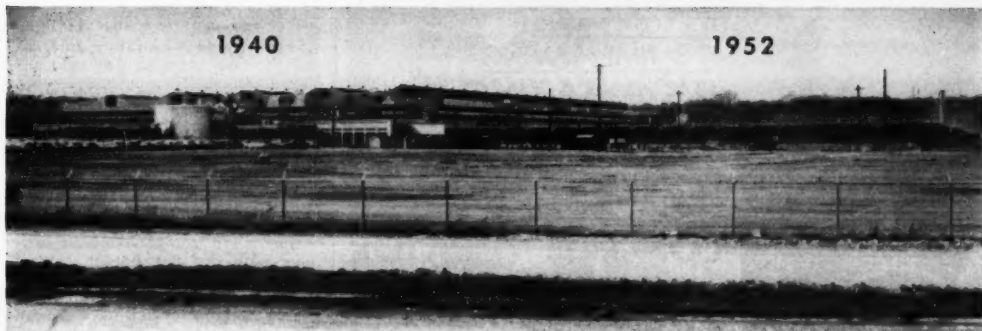
**CARVER PUMPS**



**MAGNETIC FIXTURE FOR THICKNESS TESTER**—Whenever only one side or end of a tank, pipe or other vessel is accessible, an Audigage Thickness Tester often has been brought into play to preclude expensive drill-and-plug methods of checking progress of internal corrosion. A drawback was that it was often difficult to maintain a good contact between the searching unit and the plate being tested. Now the company has devised a magnetic fixture to hold the unit securely. Good contact is essential in ultrasonic thickness testing, because a frequency-modulated signal must be transmitted into the non-porous material and its frequency adjusted until it equals the natural frequency of the particular thickness being tested. Resonance then occurs and is indicated by an audible tone and deflection of a meter; the actual thickness corresponding to the resonant frequency can be read from a conversion scale on the instrument panel. The fixture consists of an Alnico permanent magnet coupled to each end of a flat spring and a clip that attaches the searching unit quickly and easily to its center. Standard magnets can hold the unit properly against surfaces that are slightly irregular or covered with a thin coat of paint; heavier magnets can be provided for use on cast iron and other rough surfaces, or on plates that are covered with thick coatings of paint or scale. The standard fixture weighs only 6 oz and is 5 in. wide.—Branson Instruments, Inc., 430 Fairfield Ave., Stamford, Conn.

**ELECTRIC TUBULAR HEATER**—By placing a Chromalox heater between a weld line and larger sections of cold metal, a "heat dam" is formed which slows conduction of heat away from the weld. Various designs of basic Chromalox units are used to prevent loss of metal strength. The

(Continued on page 176)



Huge Glenn L. Martin Company Building AA at Plant #2, Middle River, Md.

## LEHIGH EARLY STRENGTH CEMENT

in 1940... again in 1952

In 1940, with a world war in the making, more and more bombers were needed . . . and bigger plants in which to build them. Today, world wide unrest again has forced America to build up its defense . . . adequately and without delay.

Speed was imperative in building Glenn L. Martin Company's bomber plant in 1940. It is equally important in their big extension of 1952. For both operations rigid specifications and tight schedules were set. By using Lehigh Early Strength Cement on both, all concrete work was completed on schedule and early production assured.

On the superstructure of the current job, forms were stripped in  $\frac{1}{2}$  the usual time, though concrete was often poured at below freezing temperatures. In addition to time saving, money savings were made—on form costs 25%; on overhead 50%.

For all construction where early occupancy is desired, use a fast-curing concrete made with Lehigh Early Strength Cement. Our Service Department will be glad to help you with your specific problems.

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Concrete Contractor: **S. D. MOSES COMPANY**, Washington, D. C.

**Superstructure**

General Contractors: **REDDING & COMPANY, INC.**, and

**JAMES STEWART & CO., INC.**, Baltimore, Md.

Concrete Contractor: **BOLLINGER-LELAND COMPANY INC.**, Baltimore, Md.

Engineers: **WHITMAN, BEQUARDT & ASSOCIATES**, Baltimore, Md.



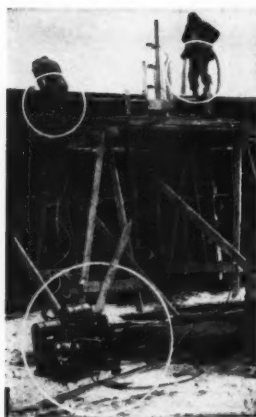
Pouring the first floor slab of the new addition. The 510,000 sq. ft. of floor area required approximately 15,000 cu. yds. of concrete.



Nearly completed 1952 Extension to the Glenn L. Martin Company Building AA at Plant #2.



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HEAD IS LIGHT**

In photo—Maginniss HI-LECTRIC Generator with two Vibrators, each with one operator, replaced two gas engine flexible shaft vibrators, each with two operators. The wall is 12' high, 14" thick.

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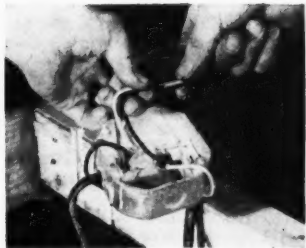
(Continued from page 174)

heaters reduce temperature differential between the weld area and adjacent metal, thereby eliminating locked-in stresses that frequently cause failure of welded parts. In the case of a straight line weld, heaters are held in place about 6 in. from the weld line by bolting them to tack-welded studs. Special heater shapes are attached similarly to fit the heat to various weld contours. Heating elements are triangular in cross-section, with one flat side in contact with work for fast heat transfer. In operation the heaters are turned on before welding begins until a temperature of 400 to 500 deg F is attained in the weld zone. Pre-heating and post-heating periods vary according to type and thickness of metal. Controlled heating and cooling bring improved quality of welds and avoid hard, brittle joints caused by rapid cooling; drive off surface moisture, assuring better adhesion of weld deposit; and reduce distortion and residual stresses.—**Edwin L. Wiegand Co., 7500 Thomas Blvd., Pittsburgh 8, Pa.**



**SEMI-AUTOMATIC NAILER**—Any pneumatic hammer with a No. 2 Morse Taper can be fitted with the Fox Semi-Automatic nailer which is designed to save nails, minimize fatigue of overhead nailing and speed up every nailing job. Only 6 in. long and weighing only 1 lb, it has four parts, two of which are stationary. Nails are fed head first into the muzzle and driven by rapid blows of a steel plunger when the trigger is pulled. It requires little or no maintenance, since there is no build-up of destructive heat or friction. Toenailing can be accomplished with the same ease as straight nailing, and it's fine for crating as well as for fastening formwork, plywood and framing. It's not an untried development. It was first made 3 yr ago and has been undergoing actual construction job tests for 2½ yr.—**Fox Nailer Corp., 3706 Airport Way, Seattle 4, Wash.**





**SPRING-TYPE CONNECTOR**—For circuit wiring, appliance hook-ups and fixture work the small but powerful spring-type connector shown here provides a tight, permanent splice for single- or multi-strand wires up to gage 10. Made of zinc-plated steel wire, the conical-shaped connector is lubricated slightly and is screwed on the stripped ends of wires with the fingers. A notched turning stem, providing adequate leverage during application, is then snapped off, leaving a neat splice with no sharp ends. The coil spring design allows the connector to expand while being applied, but provides a shake-resistant, tension grip once the splice has been made. The fact that the connector adds but a fraction of an inch to the over-all diameter makes it ideal for joining wires in crowded junction boxes. Recommended insulation is plastic "Scotch" electrical tape No. 33, which provides a water- and oil-resistant splice. The connectors cost but a few pennies each and save considerable time and punctured thumbs and fingers.—**Minnesota Mining & Mfg. Co., 900 Fauquier St., St. Paul 6, Minn.**

**IMPROVED IGNITION SYSTEM**—In a new and radically different industrial engine ignition system, developed by Continental engineers and designated as the Context, breaker points and condenser, instead of being housed within the flywheel as in conventional air-cooled engines, are mounted as an external unit on top of the crankcase, the cam which actuates the points being driven off the camshaft. When these parts require inspection, adjustment or repair, they are instantly accessible under a quick-removable cap held in position by spring clips. Heretofore it has been necessary to remove the shroud and flywheel to get at these units. The breaker points operate at one-half engine speed, thus lengthening the useful life of ignition system components. On Continental air-cooled motors of the AU series, this system is available also in conjunction with fly-weight mechanical governor. The centrifugal unit is housed under the same cap as the condenser and points. — **Continental Motors Corp., Air-Cooled Engine Div., 12800 Kercheval Ave., Detroit 14, Mich.**

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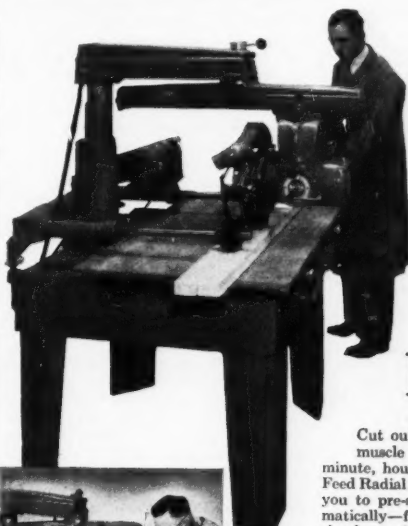
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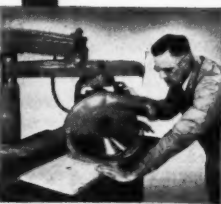


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**16" POWER FEED  
RADIAL SAW**

Cut out the "time out" of tiring, costly muscle power—rip up to 100 feet per minute, hour after hour, with a Delta Power Feed Radial Saw. Variable speed selector allows you to pre-set the desired rate of feed automatically—from 20 f.p.m. to 100 f.p.m.—by simply turning a dial. Smooth, even feed means accurate work—increased profits.

The Delta Power Feed gives positive control when handling any lumber—soft or hard, wet or dry, rough or finished, short or long. What's more, it safeguards your motor as blades get dull.

**2 machines in 1**—with the power feed attachment, the Delta is a real production machine; manually operated, it is the most versatile radial saw on the market—rips, angle rips, ploughs, rabbets, shapes, sands, routs... uses have been listed in excess of 125 known operations.



Shown in manual operation, the Delta 16" Radial Saw will crosscut 25" wide on 1" stock, 22" wide on 5" stock—will rip to center of 77" wide panel.



With the Delta automatic power feed attachment, you reduce labor costs and handle material faster with resultant profit increases.

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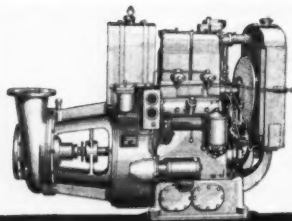
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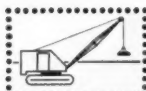
Name \_\_\_\_\_  
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FOR DELTA DEALERS, SEE YOUR CLASSIFIED DIRECTORY UNDER "TOOLS"

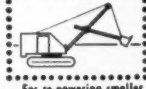


## NORDBERG Diesel Units

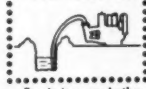
**WILL  
SAVE  
MONEY  
ON ALL  
THESE  
Construction  
POWER  
JOBS**



Electric power for lighting or for crane magnets.



For re-powering smaller shovels.



For drainage and other pumping jobs.



For original or replacement power in mixers.

THESE are just four of the scores of construction powering jobs you can handle better, at lower cost, with Nordberg Diesel Power Units. Built in 1, 2 and 3-cylinder sizes, these compact, heavy-duty units provide from 10 to 45 hp. or 6 to 30 kw for around-the-clock construction service. Get the facts today. Clip the coupon now.

NORDBERG MFG. CO., Milwaukee, Wisconsin

## NORDBERG

BUILDERS OF AMERICA'S LARGEST LINE OF HEAVY DUTY DIESELS

Nordberg Manufacturing Company  
Milwaukee, Wis. 4-252-C

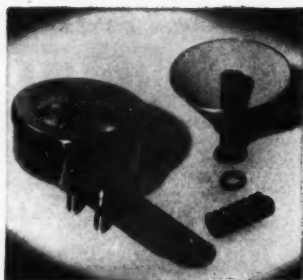
Please send literature describing the full line of Nordberg "4FS" Diesel Power Units.

Your Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_



**OIL FILTER**—Many buses and trucks, as well as heavy construction machines, are sporting a new type of oil filter which uses a new principle of operation. Known as "Filterall", it features a permanent metal filtering element that eliminates the need for cartridge pack replacements and at the same time will not cause a loss of oil through absorption. In Navy and private test laboratories it has come through with flying colors. It's about half the size of a conventional oil filter. The secret is its permanent element, constructed of carefully sized, spherical-shaped bronze particles fused together where they touch. This provides a porous structure which allows 100% of the oil to filter through six times faster than in more conventional types. Yet foreign matter, as small as 5 microns, is prevented from remaining in the oil. Also, it will not bypass cold oil, but will operate with full efficiency the moment the engine is started. It's guaranteed not to filter out, nor absorb, the protective additives that most oils contain. Models are available for conversion of most passenger cars and heavier engines.—**Permanent Filter Corp., 2309 Riverside Dr., Los Angeles 39, Calif.**

**ARCAIR TORCH**—The new "Arcair" torch operates with an ordinary dc welding machine and a compressed air line. It removes defects in castings or forgings; cleans the root of welds; removes welds; and grooves, cuts, or bevels mild steel, stainless steel, hard alloys, brass, bronze, monel and cast iron. No gas cylinders or regulators are necessary with this new type of torch. Air and current are brought to the torch through a concentric cable permitting flexibility and ease of handling. It can be used anywhere it is possible to weld, and operates in spaces that are often too restricted to accommodate a chipping hammer or oxyacetylene gouging torch. Many alloy parts, such as manganese steel inserts, are welded into the equipment with stainless steel welds. This process gouges out stainless and manganese steel as readily as mild steel, and is entirely effective in removing these welds for replacement of worn parts.—**Arcair Co., 2614 Burwell St., Bremerton, Wash.**



## Cut High Labor Costs

You Don't Have to Buy New Forms for Every Job

**SPEED FORMS** can be set up, stripped, cleaned, moved and reused in far less time than wood. Lightweight, easy to handle. No heavy bracing needed. No gadgets or special fastenings—Units go together with wedge clips. Made of steel—Good for reuse again and again on job after job indefinitely without repair. Reduce material costs way below wood—Many records of 400-500 and more uses. Just send us plans of the job. Let us show you how to save Real Money on Form Work. Write Dept. MC. Ask a representative to call.

Face-Wall form Unit

Wedge clip

## IRVINGTON FORM AND TANK CORP.

20 VESEY ST., NEW YORK 7, N. Y.



## Concrete

## VIBRATORS

Gasoline Engine or Electric Motor Driven

## CONCRETE GRINDERS

## OTHER PRODUCTS

## FRONT END SHOVELS

for Industrial Tractors

## HEATING KETTLES

for Asphalt and Tar

## AGGREGATE DRYERS

for Stone and Sand

## ASPHALT PLANTS

Portable — Stationary

Write for Circulars

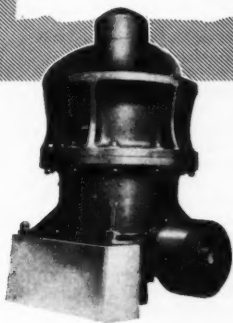
White Mfg. Co.

ELKHART 6,

INDIANA

### ***Sitting down on the job!***

*Almost a century ago, this rig was suggested by Macadam to produce aggregate on the job for his new roads. Although it made the work easier, it still depended on hand labor . . . necessarily slow and inefficient.*



The Traylor TY Reduction Crusher, with its compact design and job-proved efficiency, is a perfect example of advanced crushing machinery. Bulletin 6112 gives specifications and description.



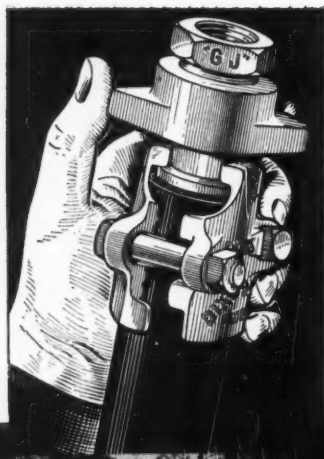
**TRAYLOR ENGINEERING & MANUFACTURING CO.**  
1417 MILL ST., ALLENTOWN, PA.

SALES OFFICES: New York • Chicago • San Francisco  
Canadian Mfrs: Canadian Vickers, Ltd., Montreal, P.Q.

a **Traylor**

leads to greater profits





## *This* AIR HAMMER COUPLING

rates first among users of heavy-duty air hose because of its outstanding strength, durability and efficiency.



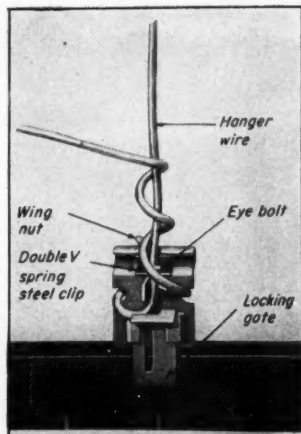
## "GJ-BOSS" *Ground Joint* *Air Hammer Coupling*

Washerless construction, with soft-to-hard metal union between stem and spud forming leakproof seal. All parts steel or malleable iron, in plain design, providing highest resistance to wear and breakage. Furnished with strong "Boss" Interlocking Clamps. Compact and heavy types, in sizes  $\frac{1}{2}$ ",  $\frac{3}{4}$ " and 1". Rustproofed.

Stocked by Manufacturers and Distributors of Industrial Rubber Products.

# DIXON *Valve & Coupling Co.*

GENERAL OFFICES & FACTORY—PHILADELPHIA 22, PA. BRANCHES—CHICAGO  
BIRMINGHAM • LOS ANGELES • HOUSTON • DIXON VALVE & COUPLING CO. LTD., TORONTO  
ASSOCIATE COMPANIES: DUCK TON COMPANY INC. QUAKERTOWN, PA. • PRECISION HEAVY STEEL COMPANY, TAMEN, N.Y.



**E-Z LEVEL CLIP**—The E-Z Level Clip has been designed to eliminate problems in leveling  $1\frac{1}{2}$ -in. standard furring channels for suspended ceilings. It has been designed particularly to work with No. 8 standard wire hangers. First step in an installation is to slip the hanger wire through an eye on the metal clip when it is at approximate finished ceiling level. A small wing nut tightens the hanger wire against a double V spring steel clip. The  $1\frac{1}{2}$ -in. channels are then simply installed and held upright by raising or lowering a small locking gate on the lower half of the clip. Since the channels are held only on the top flange, the lower half remains free to receive furring and other nailing channels which may require exact installed centers. This eliminates the hazard of destroying the level by bumping hanger wires right or left. Final adjustment is made by loosening the small wing nut. When it is again thumb-and-finger tightened, the wire hanger is bent around notches in the clip sides to maintain level securely.—**Suspended Ceilings Div., The Sanymetal Products Co., Inc., Cleveland, Ohio**

**REVERSIBLE PUMP**—The Gardner-Denver model CAY centrifugal pump was designed primarily for circulating cooling water in air compressors, diesel and gasoline engines, and other water-cooled machines, and it operates in either direction. Advantages of the reversible pump include easy installation in any position on a machine, simplified piping design and adaptability to any type of drive. It has been installed successfully on alternate sides of the same machine without turning the pump around to compensate for change in position. The new model CAY is suitable for heads up to 50 ft and capacities up to 67 gpm. It is fitted with two pre-lubricated ball bearings, and has a mechanical seal designed to eliminate stuffing box leakage.—**Gardner-Denver Co., Quincy, Ill.**

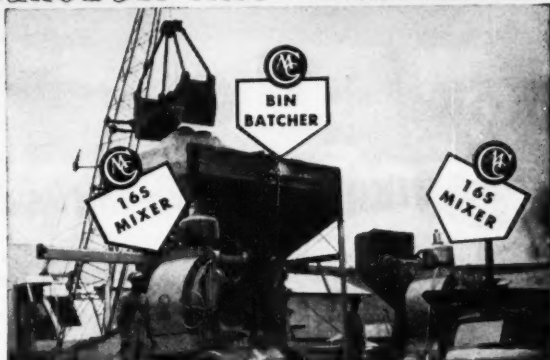




**PORTABLE WINCH-HOIST**—The Lug-All 1½-ton alloy winch-hoist, built for the rugged requirements of heavy construction and the utilities, offers many new and useful features. It has a 30-to-1 power ratio and has been tested to 100% overload. Weight is only 8½ lb and features include top-grade preformed flexible aircraft cable, stainless steel fittings and springs and permanently oiled bearings. The handle is reversible and can be readily removed if a rigging must be left overnight, leaving the setup tamperproof. A combination of three swivel hooks and a built-in pulley block allows work to be done around corners. It can be operated in any position and can be set for forward, reverse or free wheeling. Cable length is 10 ft, but any extension length is optional. Some of the many uses to which Lug-Alls have been put are: Moving machinery, lifting or skidding engines, repairing conveyor belts, lining up concrete forms, pulling cables, opening boxcar doors, pulling link fencing.—**The Lug-All Co., 331 E. Lancaster Ave., Wynnewood, Pa.**

**INCREASED RPM IN SMALLER ENGINES**—Caterpillar Tractor Co. has started shipments of its D318, D315, and D311 60-cycle, self-regulating electric sets operating at 1,800 rpm. Their 1,200-rpm electric set will continue to be standard, however. The standard D318 electric set has a 12-hr rated output of 45 kw and the modified model, operating at 1,800 rpm, is rated at 60 kw. With increased rpm the D315 output jumps from 30 to 40 kw, while the D311 jumps from 21 to 30 kw. D311 electric sets also will be available to deliver current in single-phase voltages at 1,800 rpm, rated at 25 kw. Generators are of the self-regulated type and are mounted with belt-driven exciters. Flexible coupling drives the rotor which is carried by two ball bearings.—**Caterpillar Tractor Co., Peoria 8, Ill.**

*You can't beat this combination*



*It's double speed ahead now!*

Here's a portable Central Plant that amazingly reduces pouring costs. It's CMC 165 mixers in tandem with CMC two-bin BIN-BATCHER. When you buy select CMC equipment you get the best. Every piece of CMC equipment is built to take the punishment of long service! Write today for latest catalog.



**CONSTRUCTION MACHINERY CO'S.**  
MIXERS—PUMPS—HOISTS—SAWS  
DUMPOVER PARTS

## WELLMAN Williams Type

**MORE YARDAGE PER DAY**



● Elimination of excess materials and careful weight distribution permit rapid, rhythmic operation of Wellman Dragline Buckets. Operators can cover a wider digging radius with this streamlined bucket.

Built of special alloy steel, using strong welded design, Wellman buckets provide strength and stamina for long-term economy. Perforated designs also available. You'll do better with Wellman.

*Want Facts?*

Write for free descriptive bulletins.

**THE WELLMAN ENGINEERING COMPANY**

7000 Central Avenue • Cleveland 4, Ohio

**DRAQLINE, CLAMHELL, CUSTOM-BUILT BUCKETS • STONE AND WOOD GRABS**

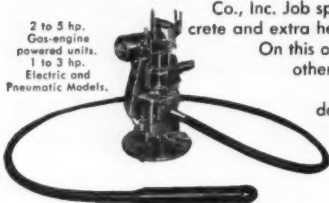
## Where Good Concrete is a "Must"...



### **Mall** VIBRATORS are on the Job!

In the construction of the substructure boxes for New York City's new "floating" concrete Pier 57, Mall Vibrators were used exclusively by Merritt-Chapman & Scott Corporation and Corbetta Construction Co., Inc. Job specifications included: Low slump concrete and extra heavy reinforcing rod on 2½" centers.

2 to 5 hp.  
Gas-engine  
powered units.  
1 to 3 hp.  
Electric and  
Pneumatic Models.



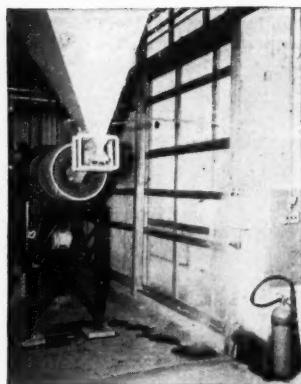
On this outstanding project as well as on many other jobs where efficient equipment is required, Mall Concrete Vibrators demonstrate their Heavy Duty Serviceability and practical efficiency.

Write for Mall Vibrator catalog describing full line.

40 Factory-Owned Service Warehouses, Coast to Coast to Serve Our Customers and Thousands of Dealers.

**Mall**  
TOOL COMPANY

7704 S. Chicago Avenue  
Chicago 19, Illinois



### INCREASE IN APPLICATION OF

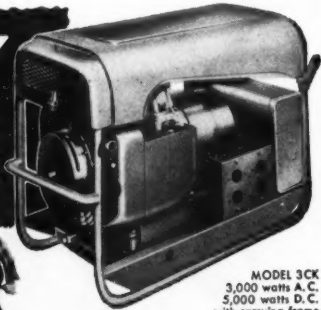
**VIMLITE**—A sizable increase in the application of Vimlite for both temporary and permanent installations is reported by the manufacturer. Its light-transmitting and insulating qualities, along with semi-rigidity, makes it ideal for office and factory partitions and window uses in industrial and chemical plants. Stock-room walls in many factories are being replaced by Vimlite partitions to make use of daylight instead of artificial illumination. Contractors use them in buildings under construction since they permit finishing trades to work regardless of weather, and at the same time provide freedom from dust and control of humidity, heat, cold and drafts. Vimlite 300-CW is sold in 50- and 150-ft rolls, 36 in. wide. It's made of 10-mesh galvanized wire coated with tough liquid plastic. The 800-CW type is sold in 50- and 100-ft rolls, 28, 36, and 48 in. wide, and contains 14-mesh wire.—Arvey Corp., 3458 N. Kimball Ave., Chicago, Ill.

## Cut Costs! with **ONAN** portable ELECTRIC PLANTS



Take 'em  
Anywhere!

Increase your profits by using fast-working, cost-cutting electric tools on every job, even where highline power is not available. Lightweight, sturdy, Onan engine-driven electric plants supply instantly-available power anywhere for lights, drills, saws, pipe-



MODEL 3CK  
3,000 watts A.C.  
5,000 watts D.C.  
with carrying frame  
or dolly-mounted

threaders, planers, spades, tampers, repair-shop tools and other motor-driven equipment. Carry 'em, wheel 'em, or truck 'em right to the spot and plug in for all the power you need. Equipped with carrying handles or dolly-mounted.

Lightweight Air-Cooled Models: A.C.—400 to 3,000 watts. D.C.—750 to 5,000 watts. Heavy-duty models to 35,000 watts.



Write for Free Folder!

**D. W. ONAN & SONS, INC.**

7852 University Ave. S.E., Minneapolis, Minnesota



# Let's Call Wire Rope Constructions *by their Right Names!*

This is a message of importance to every user and purchaser of wire rope. It is information that will help eliminate much of the past confusion over wire rope terminology.

How did this confusion arise? Let's illustrate briefly. For years 6 x 19 has been just a name for a variety of six-strand ropes, few of which actually have 19 wires per strand. As an example, our popular 6 x 19 W has always contained 25 wires per strand; the 6 x 19 U, 21 wires per strand. The 6 x 19 Seale, on the other hand, really does have 19 wires in each of its strands. Until recently, the letter or name following the numbers denoted the actual construction; but many users did not know this, and the omission of these symbols occasionally resulted in costly misapplications.

To clarify matters in the various classes of rope, Bethlehem has revised the entire list of misleading designations. For instance, in the

Bethlehem terminology, Type W rope is now designated—accurately—as 6 x 25 W (not 6 x 19); Type Q is 6 x 41 Q (not 6 x 37). This completely accurate terminology applies to each and every rope that Bethlehem makes.

*Nothing has been changed but the designation.* The ropes are made to the same high standards of Bethlehem quality. *Constructions are the same as in the past.* Only the names, the designations, are different. The numbers now mean what they say.

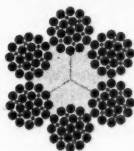
We earnestly solicit your help in publicizing this information. The transition now under way is one that has long been needed.

**BETHLEHEM STEEL COMPANY**  
BETHLEHEM, PA.

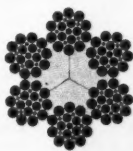
On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation



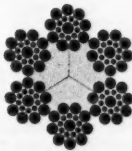
6 x 25 Type W



6 x 21 Type U



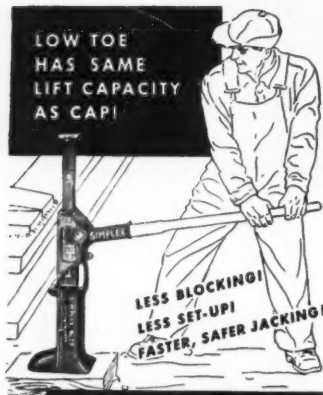
6 x 19 Seale



Of these three ropes, Seale is the only one with 19 wires a strand. Yet for years all three types have been known as 6 x 19. This is not an isolated case. Similar instances occur in other classifications of rope.

# GET 19" LIFT from 2½" CLEARANCE!

LOW TOE  
HAS SAME  
LIFT CAPACITY  
AS CAP!



## SIMPLEX RATCHET LOWERING JACKS

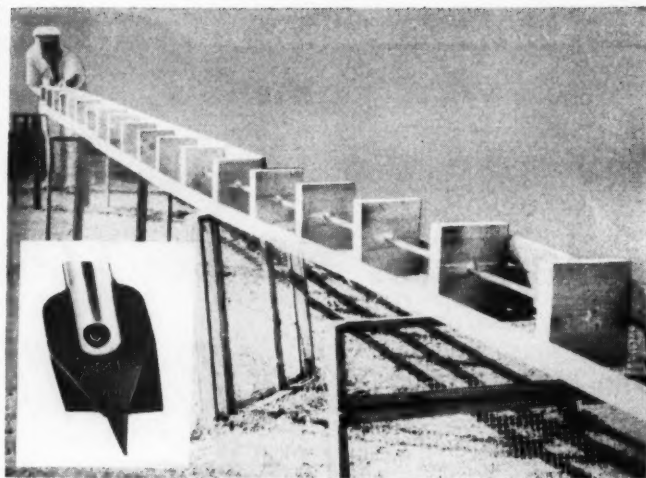
Lift or Lower the Load  
Notch by Notch—  
cannot be Tripped.

With Simplex Ratchet Lowering Jacks minimum toe clearance is necessary. Loads are usually lifted from the ground to the toe of the jack by pinch bars or wedges. Only Simplex Jacks provide equal lift capacity on toe or cap. No other jacks offer such a combination of low cost and all-purpose utility. In fast jacking action—extra-safety features—and rugged strength for longer life, Simplex Ratchet Lowering Jacks give you more for your money! Available in capacities of 1½ to 35 tons. Write today for Bulletin: Industrial 49.

**SAFETY SUGGESTION—**Use thin wood block  
—Don't lift or lower steel against steel.



**TEMPLETON, KENLY & CO.**  
1008 South Central Avenue • Chicago 44, Ill.



### Boring Set, With ¼-in. Drill, Drives Hole Through 27 ft of Joists

A new boring set and extensions, powered by a ¼-in. electric drill, can bore holes from ¾- to 1-in. diameters through 27 ft of joists or studding, or through 56 in. of solid wood. The set consists of a 5½-in. steel shaft and four tempered, blue spring-steel blades, sized 1-in., ¾-, ¼- and ⅛-in. diameter. An Allen wrench permits blade changing without removing the shaft from the electric drill. Each blade point has a front rake which also permits power drilling of holes in low melting point

plastics. Tests at the shop laboratories of the University of Illinois show that the Time Saver bit takes 1/3 to ½ less horsepower (because of less torque) than bits of similar construction. Extensions in 6- or 12-in. lengths can be joined to permit drilling through studding, floor joists, rafters or wherever deep holes are required. As many extensions as are needed can be added, with an Allen set screw holding each one, without removing the bit.—**Time Saver Tools, Inc., Mundelein, Ill.**

### HEATER, RUN BY PROPANE—

From the fast-growing liquid propane gas equipment industry comes a double-purpose portable heater ideal for winter construction jobs. The Chinook Wind heater uses propane or butane gas to provide instant, on-the-spot heat, free from smoke, soot, fumes and carbon monoxide. Measuring 2x3x4 ft high and weighing only 150 lb, it moves on rubber-tired, semi-pneumatic wheels. Its maximum capacity is 3,500 cfm (500,000 Btu), at 250 deg. The heater's torch has a dual purpose. It is readily placed into the burner channel assembly, which automatically locates it, and is easily removed for many other heating jobs. Flame- and waterproofed canvas duct, 12 in. in dia and in 12- and 24-ft lengths, can carry heat to any needed spot.

The heater can be used on inside jobs in communities where ordinances ban oil and gasoline types; wherever ordinances require an outside fuel source, it can be taken inside with its hose or copper tubing bringing in gas from an outside tank.—**International Mfg. Co., 2249 S. Delaware St., Denver, Colo.**

### SAFETY IN RATCHET - LEVER

**HOIST—**The new Coffing model R coil-chain ratchet-lever hoist has many new convenience and safety features while still retaining the unique ratchet-and-pawl operating principle originated by the company more than 25 years ago, which eliminates the need for a friction brake. The load is suspended on the ratchet and pawl at all times; thus it cannot slip, nor can the holding mechanism freeze. Use of coil instead of roller chain in the model R permits it to swing or wrap easily in any direction, and it may be pulled freely through the hoist head for quick adjustment when not under load. The handle is said to operate in any position and with partial or full strokes, and has safety stops to prevent its spinning. The entire hoist can be quickly and completely disassembled with only a screwdriver and is available in 1,500- and 3,000-lb capacities. Every model R is factory-tested at 100% overload, and the handle has been designed to bend under maximum overload conditions, thus giving the operator ample warning.—**Coffing Hoist Co., 800 Walter St., Danville, Ill.**



## NEW EQUIPMENT BRIEFS

Kling Felt No. 113 features a new, solvent-activated adhesive-back on one side that permits **weather stripping of metal casements, windows, doors and vents** in all kinds of weather without gluing or tacking. Made by **Products Research Co.**, 3126 Los Feliz Blvd., Los Angeles 39, Calif., it is available in thicknesses of 1/32, 1/16, 1/8 and 1/4 in., widths from 1/4 in. to 66 in.

The new oversize **automotive battery** of industrial type construction offers a life expectancy of 5 yr or more in normal car use, according to the manufacturer, **Gould-National Batteries, Inc.**, St. Paul, Minn. The giant battery called "Mr. Big" is available to most makes of cars by utilizing special hold-down clamps and, because of its unusual capacity, the water needs to be checked only every 5,000 mi.

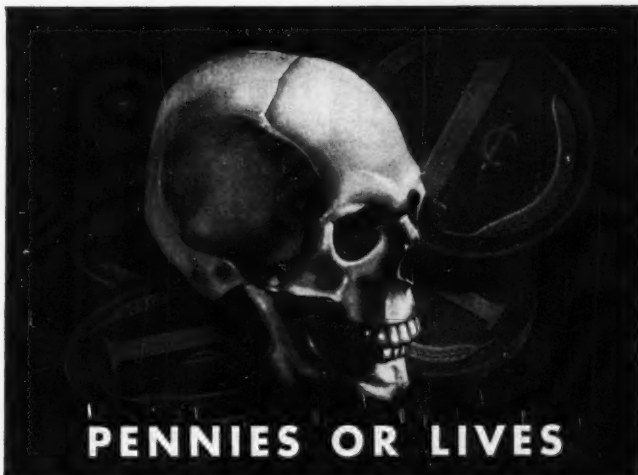
**Dart Mfg. Co.**, Mason, Mich., is manufacturing a new **steel rule** that's been designed to give more viewing area when taking inside measurements. Readings are seen at indicator points, and "anti-pop-out" design keeps blade from creeping in or out. Blades are replaceable in seconds without tools, available in 6-, 8- and 10-ft lengths.

A light-weight, portable **angle-iron carpenter's bracket** opens from a 2x48-in. package for use on residential and industrial construction. A product of **Wilson-Albrecht Co., Inc.**, (Dept KP), 3565 Woodale Ave., Minneapolis 16, Minn., its design permits the four-piece Waco bracket to accept a 36-in. ledger for sheeting, siding, shingling and other off-the-ground jobs.

A line of heavy-duty, high-pressure **shallow-well reciprocating type pumps** is being introduced by **Lancaster Pump and Mfg. Co., Inc.**, of Lancaster, Pa., with capacities ranging from 265 to 2,700 gph. Called "Lancaster Giants", they are slow-speed, double-acting and self-lubricating, powered by electric motors or gas engines.

What is claimed to be the first **die-cast magnesium carpenter's level** in standard size is being made by **Mayer Brothers Tool Mfg. Co.**, of Port Austin, Mich. The 24-in. level features permanently set dust-and dirt-free vials and takes advantage of magnesium's light weight, dimensional stability and ruggedness.

A hermetically sealed **precision toggle switch** has been developed by the Micro division of **Minneapolis-Honeywell Regulator Co.**, Freeport, Ill., which is said not to be affected by corrosive atmosphere, dust, dirt, oil or water.



## PENNIES OR LIVES



Behind many industrial accidents is the ghost of equipment failure, often caused by skimping on quality in favor of a few cents saved.



Such economies are always risky, always more costly in the end.



But when you use Laughlin Safety Hooks (and there are 15 sizes in eye, shank and swivel patterns) the extra pennies you spend will pay big dividends in protection of men and equipment.

The latch locks the load. It cannot open until released by the operator. And it's made of pressed steel or bronze with a stainless steel spring that won't rust or weaken. The cam is an integral part of the hook forging for extra strength.

The quality construction of Laughlin Safety Hooks is typical of all of Laughlin's 1500 types and sizes of drop forged wire rope and chain fittings. So remember—to save with safety always insist on the name **LAUGHLIN** for original equipment or replacement fittings.

*Our Catalog No. 150 shows and describes the complete line. A free copy will be sent on request.*

**THE THOMAS LAUGHLIN CO.**   
1014 FORE ST., PORTLAND, MAINE

# LAUGHLIN

THE MOST COMPLETE LINE OF WIRE  
ROPE AND CHAIN FITTINGS

# SYMONS FORMS


BUILD BETTER WALLS  
at  
LOW COST



**A FINE JOB**—A smooth POURED WALL is better looking, strong and waterproof.

**A LOW COST JOB**—The SYMONS FORMING SYSTEM cuts labor costs and form costs in half and cuts out all repair and maintenance costs.

**ASK FOR ESTIMATE**—You may rent, buy, or build your own SYMONS FORMS. Rentals apply on the purchase price. Send in plans for a free form layout and job cost sheet.



**SYMONS CLAMP & MFG. CO.** Dept. K-2  
4255 DIVERSEY AVE., CHICAGO 39, ILL.

Kindly send information regarding Symons Forms.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

## New PUBLICATIONS From MANUFACTURERS

The catalogs and bulletins reviewed below will keep you posted on latest developments in construction equipment and materials available for your use.

**ROLLER CHAIN AND SPROCKET WHEELS**—A 148-p engineering data book (No. 2457) covers selection, installation, lubrication and maintenance of roller chain for drives, conveyors and sprocket wheels. For reference and easy identification the book contains a large number of photographs and line drawings of the many types and sizes of chain and wheels available. In addition, more than 50 typical conveyor chain attachments are shown. Formulas, charts, diagrams and typical problems are all illustrated to aid the user in determining the proper chain for any application. One 24-p section contains a comprehensive group of pre-selected drives available from stock. A section on stainless steel and bronze chains is included for installations that demand resistance to corrosion. Also discussed are factors such as shaft and sprocket wheel alignment, chain tensions, casing assemblies and methods of lubrication under varying conditions. — **Link-Belt Co., 307 N. Michigan Ave., Chicago 1, Ill.**

**STEELTEX FLOOR LATH**—Floor lath is a combination form and reinforcement for concrete floors and roof slabs. This 12-p booklet, DM-133, contains data of interest to contractors, architects, designers and engineers. It includes complete specifications, test data, tables of face loads and instructions on how to install the laths over steel joists and precast concrete joists. Also included is a table of safe loads for laths from 2 to 3½ in. thick and spans of 18 to 32 in. — **Pittsburgh Steel Products Co., 1429 Grant Bldg., Pittsburgh 30, Pa.**

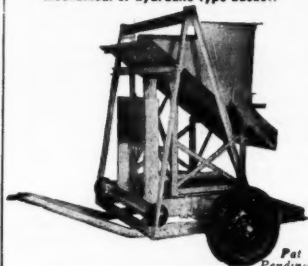
**CORROSION-RESISTANT RESIN COATINGS**—Ricwilite coatings will protect equipment against corrosive conditions in all types of industry with a film resistant to attack by corrosive acids, alkalis, salt water, rust and weathering. Coatings are ideal for protection of ventilating and duct systems, drill pipe, oil refineries, sewage lines, tank cars, etc. Two types are discussed in 4-p booklets: Ricwilite 1060 is of the baking or heat-hardening type; Ricwilite 7100 is a cold-setting type cured or polymerized at room temperatures—**Ric-wil Plastic Coating & Mfg. Corp., 1290 Euclid Ave., Cleveland 15, Ohio.**

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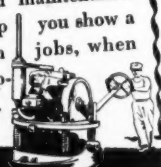
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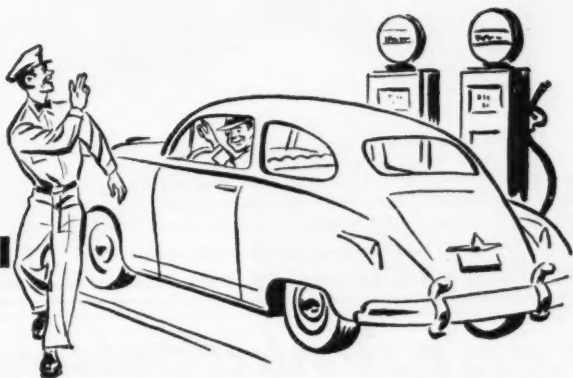
**"SEE YOU AT THE POLLS!"**



**"SEE YOU AT THE POLLS!"**



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Nobody knows for sure how it started—this line about "See you at the Polls!" we're hearing all over these days.

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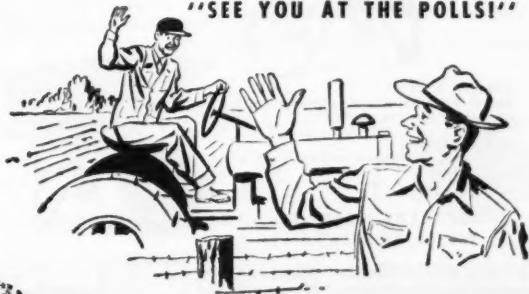
But he said—"I'll settle this the AMERICAN way—I'll see you at the polls!" And the audience picked up the chant.

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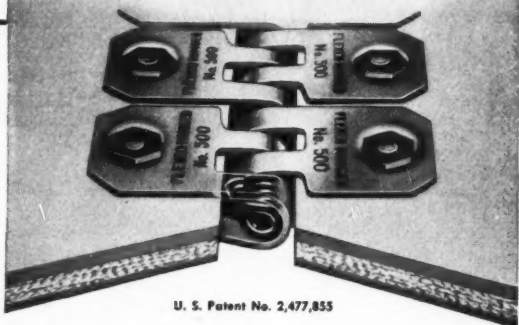


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**MAGNETORQUE SWING IN P&H'S**

**955-A**—Bulletin X122-1 of the Harnischfeger Corp. is a 40-p booklet that extols the advantages of its 955-A excavator, a "Rock-Rated" machine in the  $2\frac{1}{2}$ -yd class. Numerous photos (many of them close-ups) describe the features. It's easily convertible for various front-end attachments and a split sprocket and drum lagging arrangement eliminates need for auxiliary shafts, gears and sprockets. Lifting capacities go to 60 tons. Write for booklet to **Harnischfeger Corp.**, Large Excavator Div., Milwaukee 46, Wis.

**PERMUTIT GRAVITY FILTERS—**

Any engineer dealing with water problems will be interested in Permutit's new booklet on gravity filters and filter accessories, No. 2539A. All three basic types, concrete, steel and wood are included, and the booklet lists specifications, operating characteristics, outline dimensions and installation photographs.—**The Permutit Co.**, 330 W. 42nd St., New York 36, N. Y.

**ROAD RECLAMATION METHOD—**

A 24-p booklet titled "The Athey Method of Reclaiming Worn-Out Roads," gives a step-by-step procedure for reclaiming bituminous and gravel roads and streets, plus useful production data, rock hardness charts, cost estimates and actual job costs. Much of the factual information was obtained from actual projects across the nation. Contractors, state, county or city officials, or any person actually engaged in road rebuilding, can obtain a copy of this booklet by writing **Athey Products Corp.**, 5631 W. 65th St., Chicago 38, Ill.



**WIRE ROPE SPLICING** — A data sheet on the Torquemaster wire rope splicer contains illustrations that show how even an inexperienced worker can take advantage of this machine for wire rope splicing. The rig's ability to overcome cable torque through a resistance regulator and swivel-action jaws makes possible savings in splicing man hours up to 50%, according to the sheet—**Quay Industries, 100 Barr Bldg., Washington, D. C.**

**KRANE KARS**—The reconstruction job on the famous old Brooklyn Bridge in New York City has included so many and varied uses of Crane Kars that the company has written up a 4-p booklet describing some of the unusual and interesting uses. Included are tables on condensed specifications, hook clearances, reach and capacity charts for various boom lengths, and all types of extra equipment. On the bridge job the Kars have assisted in removal of the entire wood block flooring, tracks, ties. They have unloaded and erected approximately 4,000 tons of structural steel and bridge gratings. They also have unloaded mats, steel reinforcing bars and structural steel. Ask for Bulletin No. 79-A—**Silent Hoist and Crane Co., Brooklyn 20, N. Y.**

**SCAFFOLDING AND EQUIPMENT**—This consolidated 2-color, 20-p catalog describes every item in the line of Bil-Jax tubular steel scaffolding and equipment. It incorporates all the information heretofore appearing in two smaller catalogs, one for the tower-type scaffolding and one for the maintenance trestle. Also included are rolling, fixed and swing type; results of laboratory load tests; and suggestions for maximum safety. — **Bil-Jax, Inc., Archbold, Ohio.**

**DEHYDRATORS**—A new bulletin on sand-drag type dehydrators and classifiers has been issued by Pioneer. These Pioneer dehydrators are used for sand production and gravel, quarry and washing plant operation. The new bulletin explains operation of the dehydrator and includes a cut-away drawing, showing construction features. Complete specifications and capacities are listed. For your free copy write to **Pioneer Engineering Works, Inc., Minneapolis 15, Minn.**

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IN 4 HOURS...**

## with MALSBARY STEAM CLEANER!

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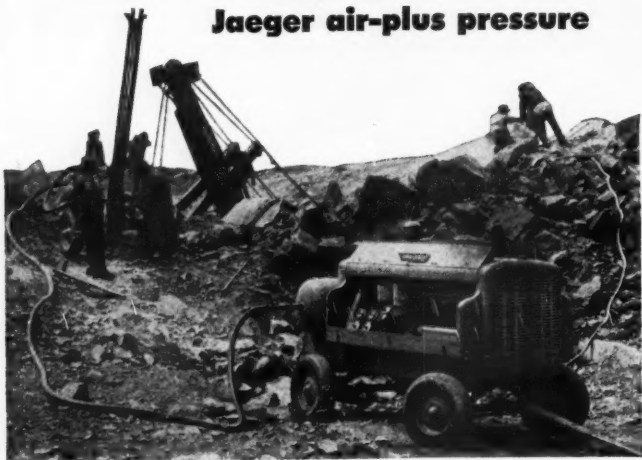
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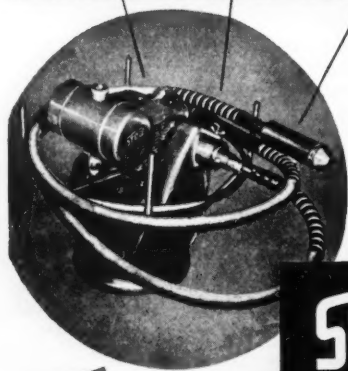


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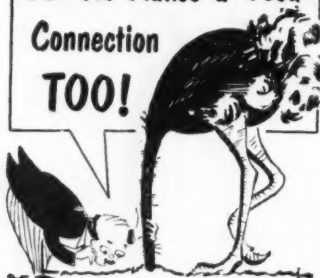
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LE-HI Makes a Good Connection!



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## RAILS NEW AND RELAYING

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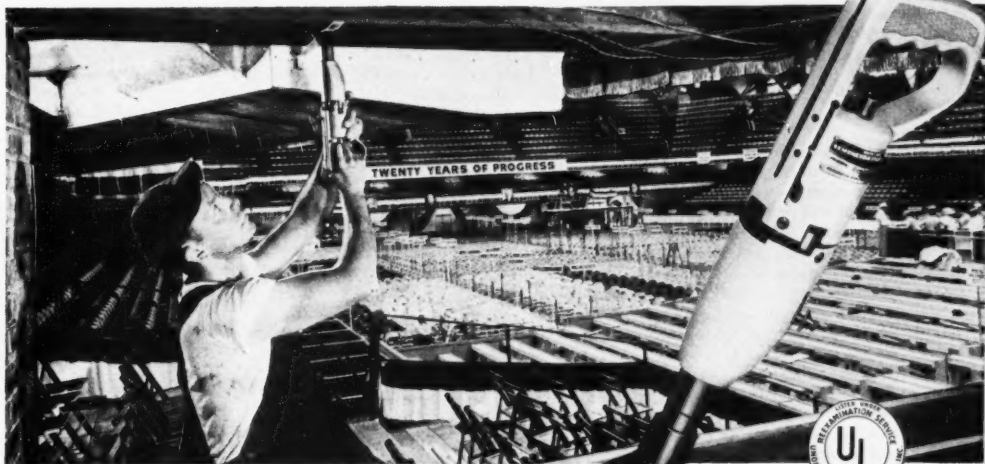
Five complete warehouse stocks assure you of the exact requirements for all your job needs. Largest stocks in U.S. of Relaying Rails and Rental Steel Sheet Piling. Also complete Track Accessories, Pile Hammers and Extractors for rent. Write for Catalogs.

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# CUTS DUCT INSTALLATION TIME 50% IN AIR CONDITIONING INTERNATIONAL AMPHITHEATRE



Courtesy: Narowetz Heating & Ventilating Company, Chicago, Ill.

## New Cartridge-Powered MODEL 450

Listed and approved by  
Underwriters' Laboratories

# REMINGTON STUD DRIVER

Despite a close deadline, ductwork was installed in time for both political conventions by the Narowetz Heating & Ventilating Company of Chicago... with the help of the Model 450 Remington Stud Driver. This revolutionary tool's speed and efficiency saved time and cut costs.

The Model 450 is completely self-powered and engineered for safety... sets as high as 5 studs per minute in joining steel and wood structural pieces to concrete and steel surfaces.

Test-proved to be the world's finest and speediest fastening system, the Model 450 Remington Stud Driver is made by Remington Arms Company, Inc., America's oldest sporting arms manufacturer. Price for Model 450, complete with rugged steel carrying case—only \$119.50. For further information, fill out and mail the coupon.

"If It's Remington—It's Right!"

**Remington**



*It's  
fast, easy and  
safe to operate  
the Remington  
Stud Driver*



Simply hand-assemble  
stud and power cartridge,  
load as a unit in easy-  
to-open Remington Stud  
Driver and close.

Then press loaded Stud  
Driver firmly against  
work surface, depress  
safety lever, and pull  
trigger. Explosive charge  
imbeds stud solidly.

Remington Arms Company, Inc.  
Industrial Sales Division, Dept. CM-10  
939 Barnum Ave., Bridgeport 2, Connecticut

I am interested in obtaining detailed information on  
the Model 450 Remington Stud Driver.

Name

Firm

Position

Address

City  State

# Methods Memo . . .

**SPEED OF COMMUNICATIONS** frequently makes the difference between profit and loss on a construction job. The time-saving possibilities of radio for contractors again was demonstrated forcibly to us the other day. One of our editors had an appointment with a contractor, in busy mid-town Manhattan. On his way, the contractor telephoned from his car while moving in heavy expressway traffic and asked our man to meet him at the curb in front of the office.

**WHAT YOU READERS LIKE** to see in both the advertising and editorial pages of **CONSTRUCTION METHODS AND EQUIPMENT** is determined, and reports on how well we are serving you are obtained, by systematically sending out each month a Readex readership survey to a small representative list of subscribers.

To you readers who have cooperated by returning your marked copy we are very grateful for your splendid help. The editors and advertisers have learned much from your reactions.

To those who may be tapped in the future with this Readex survey, we earnestly beg your attention for a few moments in order for us all to learn even more about your reading demands. Thanks, fellows, thanks a lot.

**TINY GLASS BALLOONS**, about the size of grains of sand, comprise a new type aggregate for concrete, mortar and plaster, developed at Armour Research Foundation of Illinois Institute of Technology.

Trade-named Kanamite, the fine-grain (.0069 to .0116 in. in dia) lightweight aggregate is made by blowing up bits of clay in the fiery atmosphere of a special furnace that inflates them into hollow spheres.

The Foundation reports that concrete mixes made with Kanamite are highly fluid and that mixes can be pumped through rubber hose. In addition to being light in weight, the material has shown high strength and good insulating characteristics.

**LABOR RELATIONS SLIPPED** somewhere along the line on International Harvester Co.'s beautiful plan to lease the unsightly coal mine stripping dumps south of Chicago for equipment proving grounds. The plan would not only have been ideal for testing equipment, but it also would have leveled off the dumps.

But now, as International is moving in with a fleet of equipment to be tested,

the United Mine Workers demand the right to operate the rigs. Obviously, members of this union are not trained in equipment test operation, but they hold the whip hand over the coal mine owners of the property. So Harvester is seeking release from its leases, and hopes to set up operations elsewhere.

**STARTLING MACHINE INTELLIGENCE** was demonstrated recently when a driverless Hough Model HM Payloader fled from a burning garage. Machine and garage belong to John W. Peters and Sons Co., Burlington, Wis.

It is thought that flames licking around the Payloader short-circuited connections which, in turn, started the diesel engine. Having been left in forward gear, it began moving and crashed through the building wall to safety. Outside, it collided with a fire engine just appearing on the scene, but kept going until one of the owners stopped it.

**BOSTON BRAVES BAT SWINGERS** may be of a different stripe next year, if a current baseball lament is carried out. Canada has absorbed thousands of DPs from Europe, many of them ending up as workmen on the Perini-Walsh section of the big hydro tunnel being driven at Niagara Falls, Ont.

Reviewing the sad showing his Braves have made this year, Lon Perini threatens to send the DPs to Boston to play baseball and try out the current Braves as tunnel drivers at Niagara Falls.

**CONSTRUCTION BUSINESS FAILURES** during 1951 numbered 957, according to a current report by Dun & Bradstreet. Incompetence licked 45% of these unfortunates. "Unbalanced" experience—not well rounded in sales, finance, purchasing and production—struck out another 18%, and lack of managerial experience killed off 17%.

These classifications of causes are based on opinions of informed creditors and information in D & B reports.

**AVIATION ENGINEER BATTALIONS** are being trained in the U.S. for overseas duty on war construction of airstrips, airfields, prefab barracks, hangars and general engineer work. They are Army Engineers in Air Force service. Their headquarters is Wolters Air Force Base, Tex.

The Air Force would like to have its own engineer corps to handle AF design and construction. This desire has been a costly bone of contention.

**TOO MANY CONTRACTORS** bidding on work for the Navy make too many silly mistakes in their bids, according to the Bureau of Yards and Docks. In one three months' period, 20 such bidding errors appeared. The amount of money involved was not always minor, either, for one mistake was in the neighborhood of \$1½-million.

And the excuses given often are as fantastic as the errors. Among them: Just forgot to add my profit; too busy with other work to check my bid; adding machine was wrong; my estimator was having family trouble.

## CONSTRUCTION METHODS AND EQUIPMENT

October 1952



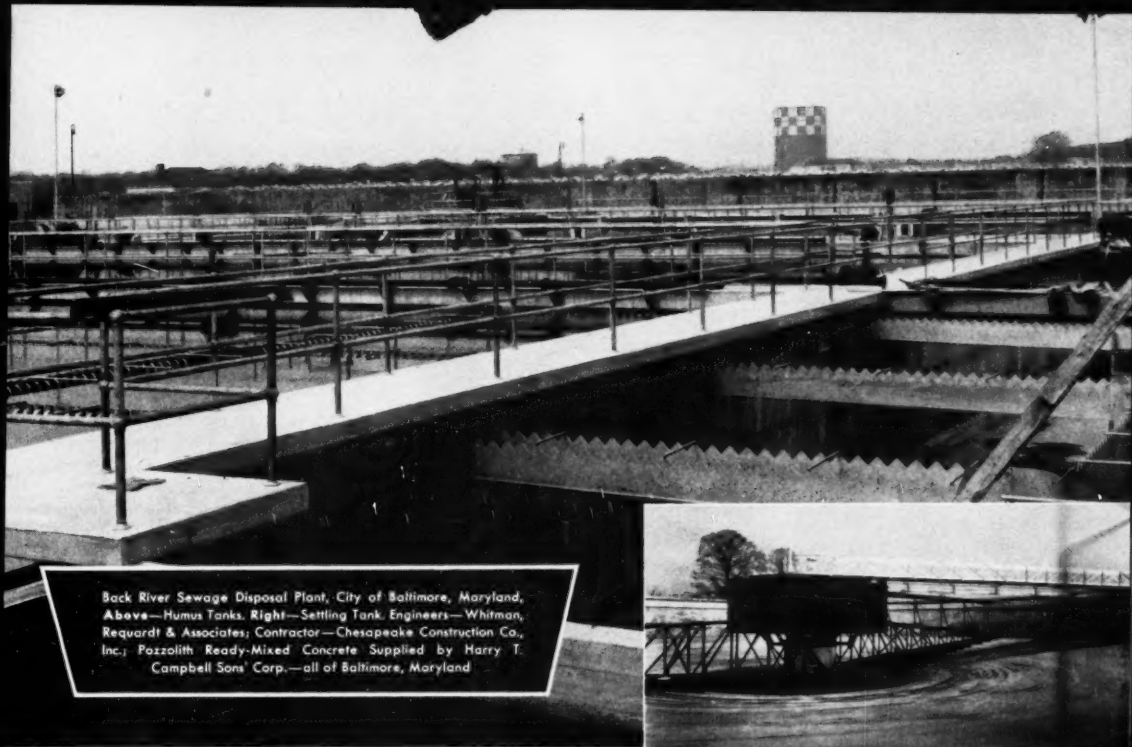
### On the Cover . . .

Up in the Land O' Lakes, Megarry Brothers, St. Cloud, Minn., set up this streamlined central plant to produce some 60,000 tons of hot mix for resurfacing 12.2 mi of Minnesota Rt 7 between Excelsior and Minneapolis.

The plant is made up of a Pioneer Continuflo Model 101 continuous-mix asphalt plant, completely portable with a 90-in. drier 24 ft long, a dust collector and a combination gradation-mixing unit. Auxiliary units include a feeder conveyor with hopper and reciprocating plate feeder, and a hot elevator between drier and gradation-mixing unit.

Everything is portable, mounted on pneumatic tires. Note that the feeder hopper is charged by a Caterpillar bulldozer working from a stockpile. Aggregates were prepared in advance by a Pioneer portable 2-unit plant and stocked by bulldozer.





Back River Sewage Disposal Plant, City of Baltimore, Maryland.  
Above—Humus Tanks. Right—Settling Tank. Engineers—Whitman,  
Requardt & Associates; Contractor—Chesapeake Construction Co.,  
Inc.; Pozzolith Ready-Mixed Concrete Supplied by Harry T.  
Campbell Sons' Corp.—all of Baltimore, Maryland

#### OTHER MASTER BUILDERS PRODUCTS IN WHICH CEMENT DISPERSION IS EMPLOYED

##### EMBECO...

For non-shrink grouting and re-integration.

##### MASTERPLATE...

Industry's long life floor. Non-colored and 11 colors.

##### MASTERTEX...

Cement-base paint of low permeability for protecting and decorating exterior and interior surfaces of concrete and masonry.

##### OMICRON MORTARPROOFING..

For tight brick walls. Provides good workability with 15-20% less water, correct water retentivity. Contains stearate.

## Superior Concrete Today and Tomorrow... with POZZOLITH

Improved concrete properties obtained with Pozzolith resulted in important advantages during the construction of this \$2,000,000 sewage works project... will provide equally important advantages throughout the life of the plant.

Ideal workability with reduced water and good cohesiveness provided easy placeability for thin wall sections, low shrinkage and no segregation.

Other immediate benefits obtained with Pozzolith were designed strength, high bond of concrete to steel and low permeability.

Pozzolith Concrete's resistance to corrosion and exceptional resistance to freezing and thawing will provide the long term benefits of added years of service and low maintenance expense.

Pozzolith provides these benefits — *at lower cost than by any other means* — because it disperses cement, reduces water and entrains the optimum amount of air.

*Full information on request.*

**Over 600 Leading Ready-Mix Plants  
Are Producing Pozzolith Ready-Mixed Concrete**

*The*

**MASTER**



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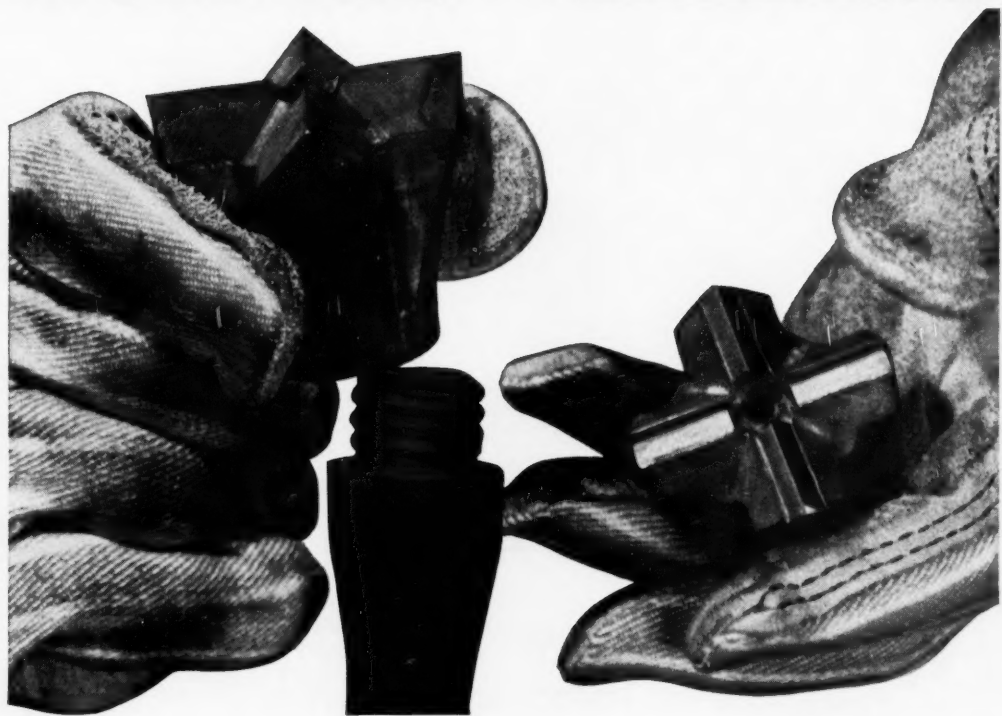
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# Change to the most economical bit type as the ground changes—RIGHT ON THE JOB!



## *Both TIMKEN® rock bit types fit the same drill steel*

**Y**OU'LL save drilling time, cut labor costs by using interchangeable Timken® rock bits on the job. Drillers can quickly change from multi-use to carbide insert bit, *right on the job!* Both types fit the same drill steel.

Use Timken multi-use bits for ordinary ground. With correct and controlled reconditioning, they'll give you the lowest cost per foot of hole when full increments of steel can be drilled.

When you run into hard, abrasive ground, change to Timken carbide insert bits. They're the best bet for maximum speed, constant-gage holes, small diameter blast holes and very deep holes.

With both Timken rock bit types on hand, you'll always have the right answer to every drilling problem.

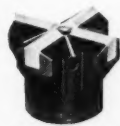
Timken carbide insert bits and multi-use bits are interchangeable in each thread series. And both types of Timken rock bits give you these 3 big advantages: 1) made from electric furnace Timken fine alloy steel, 2) threads are not subject to drilling impact because of the special shoulder union developed by the Timken Company, 3) quickly and easily removable.

Call upon the 20-years' experience of our Rock Bit

Engineering Service for help in selecting the best bits for *your* job. Write The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".



Timken threaded  
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